

LOCALIZATION OF ALU SEQUENCES THAT MATCH TO THE GENOMIC REGIONS THAT EXHIBITED EVIDENCE FOR LINKAGE TO MAJOR PSYCHOSIS

SZ - Alu clones from individuals affected with schizophrenia
 BD - Alu clones from individuals affected with bipolar disorder
 MD - major depression
 CTRL - control samples

Sample Name (matched bp, %, chr band) number of ccgg sites	Homology length in bp; %	Chromosomal location	Evidence for linkage or association to schizophrenia or bipolar disorder
SZe-32m56	189, 99.5 %	6p22.3	Eckstein GN, Schwab SG, Maier W, Wildenauer DB. 1998. Searching for candidate genes for schizophrenia in chromosome 6p22.23: isolation of a BAC contig spanning 3.5 megabases. <i>Am J Med Genet</i> 81:530.
Sch37-9RR	160, 98.2 %	10p14	10p11-15 Faraone et al. (1998) nonparametric LOD scores at markers D10S1423 and D10S582 were 3.4 ($P = .0004$) and 3.2 ($P = .0006$), respectively.
E-283m56SZ	190, 99.5%	10p14	Schwab et al. (1998a), ¹ nonparametric LOD score of 3.2 ($P = .0007$) at marker D10S1714(Schwab et al. 1998)
			(Straub et al. 1998)Straub et al. (1998) LOD score of 1.91 ($P = .006$) at with markers D10S1426 and D10S674

¹ Schwab SG, Hallmayer J, Albus M, Lerer B, Hanses C, Kanyas K, Segman R, Borzman M, Dreikorn B, Lichterman D, Retschel M, Trisler M, Maier W, Wildenauer DB. 1998. Further evidence for a susceptibility locus on chromosome 10p14-p11 in 72 families with Kanyargiou M, Kasch L, Laxeter VK, Hwang J, Elango R, Bernardini DJ, Kimberland M, Babb R, Francouano CA, Wolyniec PS, et al., (1994). Report from the Maryland Epidemiology Schizophrenia Linkage Study: no evidence for linkage between schizophrenia and a number of candidate and other genomic regions using a complex dominant model. *Am J Med Genet*, 54:345-53 @ by nonparametric linkage analysis. *Am J Med Genet* 81:302-307.

Figure 1

SZr-37m56	183, 96.5 %	11q14.2	Mulcrone J, Whatley SA, Marchbanks R, Wildenauer D, Altmark D, Daoud H, Gur E, Ebstein RP, Lerer B. 1995. genetic linkage analysis of schizophrenia using chromosome 11q13-24 markers in Israeli pedigrees. Am J Med Genet 60:103-108.
E-318_m74_SZ	206, 97.7 %	22q12.2	22q11-13, Pulver et al. (1994a)(Pulver et al. 1994a; Pulver et al. 1994b; Pulver et al. 1994c) LOD score of 2.82 at marker locus IL2RB; ($P = .009$) The implicated region is near the velocardiofacial syndrome (VCFS) deletion, Lasseter et al. 1995(Lasseter et al. 1995) Polymoropoulos (Polymoropoulos et al. 1994)et al. 1994 Coon (Coon et al. 1994a; Coon et al. 1994b)et al. 1994a Stober (Stober et al. 2000)et al. 2000
E-305_m740_SZ E-221_m37_SZ E-267_m50_Ctrl E-288_m56_SZ E-289_m56_SZ E-297_m740_SZ E-295_m740_SZ E-294_m740_SZ E-293_m56_SZ E-286_m56_SZ E-252_m48_SZ E-244_m48_SZ E-130_m37_SZ SZm74-E-59 SZm74-E-58	191, 100 %	Yq12, Yq11.23, Yq11.223	Myles-Worsley(Myles-Worsley et al. 1999) et al. 1999 Yq11.23 and Yq12(Alitalo et al. 1988) Alitalo T, Tiihonen J, Hakola P, de la Chapelle A. 1988

Figure 1 Continued

SZm74-E-50 SZb_M37-1 SZb_M37-7 SZC_M37-5 SZC_M37-2 SZC_M37-26 SZC_M37-15 SZC_M37-7 SZC_M37-5 SZD_M37-14 SZRevCom48_E-33 SZRevCom48_E-39 SZm37-E-13_m37-7 Sch37-1 Sch37-6 Sch37-7 E-284m56SZ	191, 100 %	Yq12, Yq11.23, Yq11.223	Yq11.23 and Yq12(Alitalo et al. 1988) Alitalo T, Tiihonen J, Hakola P, de la Chapelle A. 1988
E-267_m50_Ctrl E-261_m50_Ctrl E-167m50Ctrl E-275m50Ctrl E-281m50Ctrl RevE-270m50Ctrl			
CONTROLS			
Ctrlm57-E-6	187; 99%	1q31.1	D1S2141 1q32-q41 Hovatta et al. (1998) (Hovatta et al. 1998) 1q32-41 Hovatta et al. (1999) (Hovatta et al. 1999) LOD score of 3.82 at marker D1S2891
RevE-169m50Ctrl	179; 94.8%	1q31.1	

Figure 1 Continued

E-271m50Ctrl	155, 90.6 %	1q32.1	Schizophrenia Hovatta et al. (1998) (Hovatta et al. 1998) D1S2141 1q32-q41 Lod score 90% penetrance Lod score = 3.73
Ctrlm50E-49	185, 98 %	2q35	Event-related brain potential P3 Almasy et al. (1998)(Almasy and Blangero 1998) Between D2S425 and D2S434 2q33-q37 Bivariate quantitative linkage analysis Lod score = 3.28
Ctrlm57-E-3	191, 100 % or 189, 99.5 %	5q33.2 18q22.2	5q22-31 5q31 LOD score of 3.35 ($P = .0002$) at marker D5S804 5q23.3 Straub et al. (1997) (Straub et al. 1997) Marker D5S399 at 5q31 5q31.3-q35.1 was presented by Shink et al. [1998] ² (Morissette et al. 1999) Shink E, Morissette J, Rochette D, Bordeleau L, Plante M, Villeneuve A, Barden N. 1998. Bipolar affective disorder susceptibility loci on chromosomes 5 and 21: heterogeneity in a homogeneous population in Quebec.

Figure 1 Continued

Ctrlm57-E-5.	186, 97.4 %	13q14.11	13q14-32, Blouin et al. (1998)(Blouin et al. 1998) nonparametric LOD score of 4.18 ($P = .00002$), near D13S174 on 13q32
E-166m50Ctrl	181, 100 %	18q23	Brzustowicz et al. (1999) Ewald et al. [1998] found increased haplotype sharing with distal markers at 18q23 in eight BPI patients from the Faroe Islands, in a region also suggested by Freimer et al. [1996].
E-279m50Ctrl	132, 94.7 %	18p11.23	18p11.2 and 18q12.1-q12.3 for BP and SZ, ⁴ Gershon et al. [1998] WCPG High density screen chromosome 18; average density 3.25 cM BP: 22 multiplex BP families [see (Berrettini et al. 1994)Berrettini et al. 1994] c ASM I: BPI, BPII, SA c ASM II: ASM I + RUP c Nonparametric analysis (ASPEX) c ASM I: highest peak on 18p11.2 (lod 4 2.32; p 4 0.00054) c ASM II: smaller peak closer to 18ptel (lod 1.44; p 4 0.005) c Smaller peak at 18q21 (lod $\square\square$ 1; not significant) c Confirmation previous evidence for linkage to 18p11.2
Ctrlm57-E-4.	193, 100 %	22q12.2	22q11-13, Pulver et al. (1994a)(Pulver et al. 1994a; Pulver et al. 1994b; Pulver et al. 1994c) LOD score of 2.82 at marker locus IL2RB same general region ($P = .009$) The implicated region is near the velocardiofacial syndrome (VCFS) deletion, Lasseter et al. 1995(Lasseter et al. 1995) Polymeropoulos (Polymeropoulos et al. 1994)etal. 1994 Coon (Coon et al. 1994a; Coon et al. 1994b)etal. 1994a Stober (Stober et al. 2000)etal. 2000 Myles-Worsley(Myles-Worsley et al. 1999) et al. 1999

Figure 1 Continued

CtrIm57-6-E-1	155, 87.5 %	22q13.2	22q11-13 Baron(Baron 1990; Baron 1995) 1990, 1995; Baron et al (Baron et al. 1990). 1990; Risch (Risch 1990a; Risch 1990b) 1990a; Pauls (Pauls 1993) 1993; Spence (Spence et al. 1993) et al. 1993; Cloninger (Cloninger 1994) 1994; Lander and Kruglyak 1995(Lander and Kruglyak 1995); Owen and Craddock (Owen and Craddock 1996) 1996).
BD43-15	190, 98.7 %	21q21.3	C21q21-22 Susceptibility Locus for Bipolar and Unipolar Affective Disorders Repeated From Gurling [1998](Gurling 1998),
BD43-6	190; 99%	1q21.1	1q21-22 Brzustowicz et al. (2000)(Brzustowicz et al. 2000; Maziade et al. 2002) heterogeneity LOD score of 6.50 was found between markers D1S1653 and D1S1679, Shaw et al. 1998(Shaw et al. 1998)
RevE-77m43BD	191, 99.5 %	1p31.1	1q21 Dror et al. 1999(Dror et al. 1999) A potassium-channel gene (Hkca3/KCNN3) mapped to 1q21 - Austin et al. 1999. (- hKCa3/KCNN3) (Austin et al. 1999) Bipolar disorder Rice et al. (1997) D1S1648 1p31-p21 Sib-pair analysis MLOD2.5
BDD_M34-14BD (187, 99 %	2p23.2).	Schizophrenia Blouin et al. (1998) (Blouin et al. 1998) D2S405 2p22.1 Nonparametric lod score NPI = 1.26 (p = 0.104)
E-79m43BD	186, 96.9 %	2q37.3	Event-related brain potential P3 Alamy et al. (1998)(Alamy and Blangero 1998) Between D2S425 and D2S434 2q33-q37 Bivariate quantitative linkage analysis Lod score = 3.28
E-78m43BD	192, 100 %	5q13.2;	5q11-13 Sherrington ⁶ et al. (1988)(Sherrington et al. 1988a; Sherrington

Figure 1 Continued

E-83m43BD	192, 100 % 192, 100 % 192, 100 %	5q22.2; 5q13.3; 16q23.1	<p>et al. 1988b), British and Icelandic pedigrees (a LOD score of 6.49, under a dominant model Maximum LOD score of 4.37 at locus D5S111 5q11-13 Silverman⁷ et al. (1996)(Silverman et al. 1996) (Straub et al. 1997), (Bennett et al. 1997)</p> <p>Straub RE, MacLean CJ, O'Neill FA, Walsh D, Kendler KS. 1997. Support for a possible schizophrenia vulnerability locus in region 5q22-31 in Irish families. Mol Psychiatry 2:148-155.</p> <p>Bennett RL, Karayiorgou M, Sobin CA, Norwood TH, Kay MA. 1997. Am J Hum Genet 61:1450-1454.</p>
BDD_M34-19BD.	192, 100 %	10p14 or 10p13	<p>10p11-15 Faraone et al. (1998) nonparametric LOD scores at markers D10S1423 and D10S582 were 3.4 ($P = .0004$) and 3.2 ($P = .0006$), respectively.</p> <p>Schwab et al. (1998a),⁸ nonparametric LOD score of 3.2 ($P = .0007$) at marker D10S1714(Schwab et al. 1998)</p> <p>(Straub et al. 1998)Straub et al. (1998) LOD score of 1.91 ($P = .006$) at with markers D10S1426 and D10S674</p>
E-62m34BD	192, 100 %	10p14	<p>10p11-15 Faraone et al. (1998) nonparametric LOD scores at markers D10S1423 and D10S582 were 3.4 ($P = .0004$) and 3.2 ($P = .0006$), respectively.</p> <p>Schwab et al. (1998a),⁹ nonparametric LOD score of 3.2 ($P = .0007$) at marker D10S1714(Schwab et al. 1998)</p> <p>(Straub et al. 1998)Straub et al. (1998) LOD score of 1.91 ($P = .006$) at with markers D10S1426 and D10S674</p>

Figure 1 Continued

BDC- M34-10BD BDC- M34-1BD BD34-5 BD34-8 BD43-1 BD43-2	191, 100 %	Yq12, Yq11.23, Yq11.223	Yq11.23 and Yq12(Alitalo et al. 1988) Alitalo T, Tiihonen J, Hakola P, de la Chapelle A. 1988
MDC- M39-2 MDD- M39-14 MD39-4 MD39-6 MD39-8 MD39-10 E-66m39MD	191, 100 %	Yq12, Yq11.23, Yq11.223	Yq11.23 and Yq12(Alitalo et al. 1988) Alitalo T, Tiihonen J, Hakola P, de la Chapelle A. 1988

Figure 1 Continued

GENES LOCATED IN THE CLOSE VICINITY TO THE CLONED *ALU* SEQUENCES

SZ - Alu clones from individuals affected with schizophrenia
 BD - Alu clones from individuals affected with bipolar disorder
 MD - major depression
 CTRL - control samples

References in the brackets in the right hand side column indicate the papers in which implication of the detected genes in major psychosis was discussed.

Clone Name	Homology length in bp; %	Chromosomal location	Genes located in the close vicinity (within 100,000 bp)
E-285_m56_SZ	198; 99.5%	1q31.1	prostaglandin-endoperoxide synthase 2, PTGS2 {Das, 1998 #1; Smythies, 1997 #2; Geling, 1991 #3}
E-290_m56_SZ	189; 99.5%	1q31.1	ryanodine receptor 2 (cardiac), RYR2
E-149_m48_SZ	197; 99.5%	1q42.3	general transcription factor IIC, polypeptide 3, GTF3C3
E-154_m56_SZ	188; 99%	2q33.1	MSH3, mutS (E. coli) homolog 3
SZeRev_M37-6	187; 99%	5q14.1	CENPH, kinetochore protein CENP-H
			CFDP1, craniofacial development protein 1 (Goodman, 1996 #4)
			IL1A, interleukin 1, alpha
			CRHBP, corticotropin releasing hormone-binding protein
SZe-32m56	189, 99.5 %	6p22.3	Ataxin 1, SCA1 6 papers found on Schizophrenia. 3 items found on bipolar {Culjkovic, 2000 #100; Li, 1999 #101; Joo, 1999 #102; Pujana, 1997 #103; Morris-Rosendahl, 1997 #104; Wang, 1996 #105} {Morris-Rosendahl, 1997 #40; Fernandez Piqueras, 1995 #41}
E-311_m74_SZ	201, 100 %	8p21.3	docking protein 2, 56kD, DOK2
SZe-35m56	189, 99.5 %	8q24.23	hypothetical protein FLJ10901, FLJ10901
E-322_m74_SZ	192, 100%	7p22.3	C4S-2, chondroitin 4-O-sulfotransferase 2
			EIF3S9, eukaryotic translation initiation factor 3
SZm74-E-60.	186, 99.5 %	8p23.1	hypothetical protein MGC16279

Figure 2

SZr-37m56	183, 96.5 %	11q14.2	embryonic ectoderm development, EED
E-310_m74_SZ	192, 100 %	14q21.3	ribosomal protein S29, RPS29 {Gentry, 2000 #49; Watanabe, 1996 #50} {Watanabe, 1994 #106}
E-313_m74_SZ	207, 97.7 %	15q26.3	MADS box transcription enhancer factor 2, MEF2A {Turner, 1997 #109}
E-258_m48_SZ	199, 98.6 %	17q21.33	distal-less homeobox 4, DLX4
E-16_m37_SZ	191, 99.5 %	17q23.2	tousled-like kinase 2, TLK2
E-319_m74_SZ	196, 100 %	18p11.32	Hypothetical protein FLJ23017, FLJ23017
E-315_m74_SZ	191, 100 %	19q12	highly expressed in cancer, rich in leucine, HEC
E-321_m74_SZ	191, 100 %	19p13.2	ubiquinol-cytochrome c reductase, Rieske, UQCRCF1 {Johnston-Wilson, 2000 #53}
E-315_m74_SZ	191, 100 %	19p13.2	hypothetical protein FLJ14356, FLJ14356
E-315_m74_SZ	191, 100 %	19p13.2	gonadotropin inducible transcription, GIOT-2
E-315_m74_SZ	191, 100 %	19p13.2	Kruppel-type zinc finger (C2H2), ZK1
E-251_m48_SZ	198, 99.5 %	19p13.11	hypothetical protein FLJ13659, FLJ13659
E-2531_m48_SZ	189, 100 %	19p13.11	
E-2532_m48_SZ	188, 98.5 %	19p13.11	
E-325_m74_SZ	204, 96.7 %	19p13.11	hypothetical protein FLJ13659
E-178_m74_SZ	205, 98.1 %	19q13.12	zinc finger protein HZF10, ZNF345 Takase, 2001 #54; Ogura, 2001 #55; Sun, 2001 #56
E-246_m48_SZ	192, 100 %	20p12.3	hypothetical protein MGC4816, MGC4816
SZd M37-3	190, 100 %	20q13.2	LOC57167, similar to SALL1 (sal (Drosophila))-like
SZd M37-10	190, 97.9 %	20q13.2	LOC57167, similar to SALL1 (sal (Drosophila))-like
E-318_m74_SZ	206, 97.7 %	22q12.2	oncostatin M, OSM
E-305_m740_SZ	191, 100 %	Yq12, Yq11.23,	variable charge, Y chromosome, 2 protein, VCY2

Figure 2 Continued

E-221_m37_SZ E-288_m56_SZ E-289_m56_SZ E- 297_m740_SZ E- 295_m740_SZ E- 294_m740_SZ E-293_m56_SZ E-286_m56_SZ E-252_m48_SZ E-244_m48_SZ E-130_m37_SZ SZm74-E-59 SZm74-E-58 SZm74-E-50 SZb_M37-1 SZb_M37-7 SZC_M37-5 SZC_M37-2 SZC_M37-26 SZC_M37-15 SZC_M37-7 SZC_M37-5 SZD_M37-14 SZRevCom48_ E-33 SZRevCom48_ E-39 SZm37-E- 13 m37-7	Yq11.223	
---	----------	--

Figure 2 Continued

Sch37-1				
Sch37-6				
Sch37-7				
E-284m56SZ				variable charge, Y chromosome, 2 protein, VCY2
E-312_m74_SZ	172, 96.1 %		Yq12, Yq11.23, Yq11.223	
Ctrlm57-E-6	187; 99%		1q31.1	LOC51235, hypothetical protein
RevE- 169m50Ctrl	179; 94.8%		1q31.1	PTGS2, prostaglandin-endoperoxide synthase 2 {Das, 1998 #1; Smythies, 1997 #2; Geling, 1991 #3} PIN1L, protein (peptidyl-prolyl cis/trans isomerase) long-chain fatty-acid-Coenzyme A ligase 3, FAACL3
Ctrlm50E-49	185; 98%		2q35	
RevE- 119m57Ctrl	192; 99.1%		3p22.2	SEC22C, vesicle trafficking protein, isoform a
Ctrlm57-E-3	181; 97.4%		3p22.1	
	191; 100% or 189, 99.5%		5q33.2 18q22.2	MRPL22, mitochondrial ribosomal protein L22 C5orf4, putative tumor suppressor PTGER4, prostaglandin E receptor 4 (subtype EP4) {Yeragani, 1987 #5}
Ctrl m50-26	73, 86.2 %		8q11.23	lysophospholipase I, LYPLA1
gDNA Ctrl	190, 99.5%		10p14	CUG triplet repeat, RNA-binding protein 2, CUGBP2
gDNA Ctrl	187, 100 %		10q23.1	GATA-binding protein 3, GATA3 MGC4248, hypothetical protein MGC4248
				MGC16186, hypothetical protein MGC16186
				MGC11352, hypothetical protein MGC11352
Ctrlm57-E-5	186, 97.4 %		13q14.11	LHFP, lipoma HMGIC fusion partner
E-166m50Ctrl	181, 100 %		18q23	PTPRM, protein tyrosine phosphatase, receptor type, mu (REF?? 1 items found on Schizoprenia. 4 items found on bipolar)

Figure 2 Continued

Ctrlm57-E-2	163, 91 %	19q13.32	SULT2B1, sulfotransferase family, cytosolic, 2B, member
E-296 m57 Ctrl	179, 98.4 %	21q22.11	hormonally upregulated Neu-associated kinase, HUNK
Ctrlm57-E-4	193, 100 %	22q12.2	OSM, oncostatin M (Ref?? 2 papers found on bipolar WHAT??). LIF, leukemia inhibitory factor (cholinergic EPI64, EBP50-PDZ interactor of 64 kD SF3A1, splicing factor 3a, subunit 1, 120kD
Ctrlm57-6-E-1	155, 87.5 %	22q13.2	E1A binding protein p300, EP300
E-267 m50 Ctrl E-261 m50 Ctrl E-167m50Ctrl E-275m50Ctrl E-281m50Ctrl RevE- 270m50Ctrl	191, 100 %	Yq12, Yq11.23, Yq11.223	variable charge, Y chromosome, 2 protein, VCY2
BDd_M34- 14BD	187; 99%	2p23.2	BRE, brain and reproductive organ-expressed (TNFRSF1A. LRRFIP1, leucine rich repeat (in FLII) interacting
BD43-10	192; 99.1%	3p22.2	SEC22C, vesicle trafficking protein, isoform a
E-74m43BD	181; 97.4%	3p22.1	SHC3, neuronal Shc
BDc_M34-4BD	195, 99.5 %	9q22.2	FOLR1, folate receptor 1 precursor
BDc_M34-3BD	191, 100 % or 191, 100 %	11q11 11q13.4	SKD3, suppressor of potassium transport defect 3 INPPL1, inositol polyphosphate phosphatase-like 1 FOLR2, folate receptor 2 precursor . ARIX, aristalless (Drosophila) homeobox
BD43-8	178, 100 %	11q22.3	nuclear protein, ataxia-telangiectasia locus, NPAT {Lange, 1989 #114; Weeks, 1989 #115}
E-72m43BD	160, 100 %	16q13	CNGB1, cyclic nucleotide gated channel beta 1
BD43-14	191, 100 %	16q24.2	hypothetical protein FLJ23497

Figure 2 Continued

E-71m39MD	147, 92 %	15q26.1	PRC1, protein regulator of cytokinesis 1
BDd_M43-19BD	201, 100 %	19p13.11	KCNN1, potassium intermediate/small conductance (REF ?? 1 items found on Schizophrenia. 2 items found on bipolar. SLC5A5, solute carrier family 5 (sodium iodide.
BDC- M34-10BD	191, 100 %	Yq12, Yq11.23, Yq11.223	IL12RB1, interleukin 12 receptor, beta 1 (41 papers found. on interleukin receptor & schizophrenia; 5 items found. on interleukin receptor & bipolar. variable charge, Y chromosome, 2 protein, VCY2
BDC- M34-1BD			
BD34-5			
BD34-8			
BD43-1			
BD43-2			
MD39-4			
MD39-6			
MD39-8			
MD39-10			
MDC- M39-2			
MDD- M39-14 (190, 100)			
E-66m39MD			

Figure 2 Continued

Cloned *Alu* sequences

SZ- from individuals affected with schizophrenia

CNTR- from control samples

BD - from individuals affected with bipolar disorder

MD - from individuals affected with major depression

> E-130_m37_SZ
CTGATTACGCCAAGCTCTAATACGACTCACTACTATAGGGAAGCTCGGTACCAAGCATGCTTGCGAGACGGTTACGT
ATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCAGCTCACCGAAACCTCCGGCTCACAGGTCAAG
TGATTCCTCTGCCCTCAGCCTTCTGAGTAGTAGGATGACAAGCAATTTGCCATGATACCTGGCTAATTTGTATTTT
AGTAGAGACCAAGGATTCATGTTGATAAGGTGGTTCCTTGAACTCTGACCTCAGATGATCCATCTGATTTGGCC
TCCCAAACCTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTTAGACCA
CGTGTGGGGCCCGAGCTCGGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGACAAATTCACCTGGCCGTCGT
TTTACAACGTCTGACTGGGAAACCTCGGCTTACCCAACTTAATCGCCTTGCGAGCACATCCCCCTTTCCACGCT
GGCGTAATAGACGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGGCAAGCCTG

> E-140_m48_SZ
CTATCCCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAAGCATGCTGCAGACGCG
TTACGATCGGATCCAGAAATTCGTGATTGCCTGTACTCCAGCAGTTTGGGAGGCTGAGGTGATCAGGAG
GTCAGGAGTTCTAGATCAGCCTGGCCAAACAGGGTGAACCATGTCTCTACTAAAATACAAAATAGTCAGGCG
TGGTGGTGGCACCTGTAAATCCAGTTACTTTGGGAGGCTGAGGCAGGAGAAATTTCTTGAACCTGGAGGCGAGAGG
TTGCAGTCAGCCGAGATTGTGCAAAACCCCTCCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCT
AGACCACAGCTGTGGGGCCCGAGCTCGGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGACAAATTCAC
GGCCGTCGTTTACAAACGTGCTGACTGGGAAAACCTGGCGTTACCCAACTTAATCGCCTTGCGAGCACATCCCCCT
TCGCCAGCTGGCGTAATAGCGAAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATG
GAAATGTAA

> E-150_m48_SZ
CTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAAGCATGCTGCAGACGC
GTTACGATCGGATCCAGAAATTCGTGATTGCCTGTACTCCAGCAGTTTGGGAGGCCAAATCAGATGGATCATCTG

Figure 3

AGGTCAGGAGTTCAGAACCACCTTATCAACATGAAGAATCTGGTCTCTACTAAAAGTACAAAATTAGCCAGGT
 ATCATGGCAAAATGCTTGTCATCTAGCTACTCAGAAAGGCTGAGGCAGAGGAATCACTTGAAACCTGTGAGGCGGAG
 GTTTCGGTGAGCTGAGATTGTGCAAAACCCCTCCAAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTC
 TAGACCACACGTGTGGGGCCGAGCTCGCGCCGCTGTATCTATAGTGCACCTAAATGGCCGACACAATTCACT
 GGCCGTGTTTTACAAACGTGCTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGACGACATCCCCCT
 TTCGCCAGCTGGCGTAATAGCGAAGAGGGCCGACCCGATCGCCCTTCCCAACAGTTGGCAGCCTGAATGGCGA

> E-154_m56_SZ
 ATGATTACGCCAAGCTCTAATAACAACCTCACTATGCGCAAAATGGTGGCAACCTCGCATGCTGCATACGCGTTACGTA
 TCGGATCCAGAAATTCGTGATTGGAGGGTGTTCGACAATCTCAGCTCACTGCAACCTCCACCTCCAGGCTCAATG
 ATCTCCACCTCAACTCCCCGAGTAACCTGGACCAACAGGTGCAATGCCAGCATGCCAGCTAATTTTGTATTTT
 CTGTTGAGATGGGTTTTGCCATGTTGCCAGGCAAGTCTCGAACTGCTGGGCTCAAGTGATCTCTCTGCTGCCCTCCAC
 CTCACAACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCAC
 ACGTGTGGGGCCGAGCTCGCGCCGCTGTATCTATAGTGTCACTAAATGGCCGACAAATTCACCTAGCTGCGCGTGG
 TTTTACAACGTGCTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGACGACATCCCCCTTTTCGCCAG
 CTGGCGTAATAGCGAAGAGGGCCGACCCGATCGCCCTTCCCAACAGTTGGCAGCCTGAATGGCGAATGGAAATT
 GTAAGCGTTAATAT

> E-178_m74_SZ
 AAGATCCATATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAACGCAATGCTG
 CAGACCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAATCTTGCTCACTGCAACCTCCGCGC
 CTCGCCGGTTCAAGAGATTCTCTGCTCAAGCTCCCGAGAGGCTGGACTACAGGCATGGCCACCAATGCCCCAG
 CTAGTTTTGTATTTTAGTAGAGATGGGTTTTCCCATGTTGGCCAGGATGATCTCGATCTCTTGACCTCGTGATC
 TGCCCGCTCAGCCTCCCAACTTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAGCTTCTCGAGCCTAGGCT
 AGCTTAGACCACACGTGTGGGGCCGAGCTCGCGCCGCTGTATCTATAGTGTCACTAAATGGCCGACAA
 TTCACCTGGCGTGGTTTTACAACGTGCTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGACGACAT
 CCCCCCTTCGCCAGCTGGCGTAATAGCGAAGAGGGCCGACCCGATCGCCCTTCCCAACAGTTGGCGAG

> E-191_m34-4_BD
 ATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAACGCAATGCTGCAGACGCGTTACGTA
 TCGGATCCAGAAATTCGTGATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCACACGTTGG
 GGCCCGAGCTCGGGCCGCTGTATCTATAGTGTCACTAAATGGCCGACAAATTCACCTGGCGCTGTTTACAA
 CGTCTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTA
 ATAGCGAAGAGGCCCGACCGATCGCCCTTCCCAACAGTTGGCAGCCTGAATGGCGAATGGAAATTGTAAAGCGT
 TAATATTTTGTAAATTCGCGTTAAATTTTGTAAATTCAGCTCATTTTAAACCAATAGGCCGAAATCGGCCAA
 ATCCCTTATAAATCAAAAGATAGACCGAGATAGGTTGAGTGTTCAGTTGGAAACAGAGTCCACTATT

Figure 3 Continued

AAAGAACGTGGACTCCAAACGTCAAAGGGCGAAACCGTCTATCAGGGCGATGGCCCACTACGTGAACCATCAC
CCTAATCAAGTTTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGAGCCCCCGATTAGAGC
TTGACGGGGAAGC

> E-221_m37_SZ

CCATATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGCAATGCTGCAGAC
GCGTTACGTATCGGATCCAGAAATTCGTGATTGCTGTACTCCAGCAGTTTGGAGGGCCAAATCAGATGGATCATC
TGAGGTCAGGAGTCAAGAACCACCTTATCAACATGAAGAACTCTGGTCTCTACTAAAAATACAAAATTAGCCAG
GTATCATGGCAAAATGCTTGTCTATCCTAGCTACTCAGAAAGCTGAGGCAGAGGAATCACTTGAACCTGTGAGGCGG
AGTTTCGGTGAGCTGAGATTGTGCAACACCCCTCCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGC
TCTAGACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGTATCTATAGTGTACCTAAATGGCCGCACAATTCA
CTGGCCGTCGTTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGACGACATCCCC
C

> E-244_m48_SZ

CCGTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGCAATGCTGCAGAC
GCGTTACGTATCGGATCCAGAAATTCGTGATTGAGGGTGTTCACAAATCTCAGCTACCGAAACCTCCGCCCTCAC
AGGTTCAAAGTGATTCCTCTGCCCTCAGCCTCTGAGTAGTAGGATGACAAGCATTTGCCATGATACCTGGCTAATT
TTGTAATTTTAGTAGAGACCAGGATTCCTCATGTTGATAAGGTGGTTCCTTGAACCTCTGACCTCAGATGATCCATCT
GATTGGCCCTCCAAACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAGCTTCTCGAGCCTAGGCTAGCTCT
AGACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGTATCTATAGTGTACCTAAATGGCCGCACAATTCACT
GGCCGTCGTTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGACGACATCCCCCT
TTCGCCAGCTGGCGTAATAGCGAAGAGGCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATG

> E-246_m48_SZ

CTATGACCATGATTACGCCAAGCTCTAATACCGACTCACTATAGGGAAGCTCGGTACCAACGCAATGCTGCAGACG
CGTTACGTATCGGATCCAGAAATTCGTGATTGAGGGTGTTCACAAATCTCGGCTCACTGCAACCTCCACCTCCCA
GGTTCAAAGCAATTCCTGCCTCAGCTCCCAAGTAGCTGAGATTACAGGGGCTGCCATCATGCTGGCTAATTT
TTGTAATTTTACTAAAGACGGGGTTTTGCCATGTTGGCCAGGCTGTCTCAAACCTCTGACTTCAGGTGATCCACCT
GCCTCAGCCTCCAAACTGCTGGAGTACAGGCAATCTGAATTCGTGACAAGCTTCTCGAGCCTAGGCTAGCTCT
AGACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGTATCTATAGTGTCACTAAATGGCCGCACAATTCACT
GGCCGTCGTTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGACGACATCCCCCT
TTCGCCAGCTGGCGTAATAGCGAAGAGGCGCACCGATCGCCCTTCCCAACAGT

> E-251_m48_SZ

Figure 3 Continued

CATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGACGGTTACGT
 ATCGGATCCAGAAATTCGTGATTTCGGAGGGTGTTCACAAATCTTGACTAACTGCAACATCTGCCTCCAGGTTCAA
 GCAATTCTGCCTCAGCTTCTCTGAGCAGCTGGGATTACAGATGAGCACTACCATGACAGGCTAAATTTTATATATTTT
 AGTAGAGCGGGGTTTCAACCATGTTGGCCAGGCTGGTCAATGAACCTCTGACCTCAGTGATTACCTGCCTCAGCC
 TCCCAAACCTGTGGGAATCTGAATTCGTGCAAGCTTCTGAGCCTAGGTAGTCTTAGACACACACGTGTGGGG
 GCCGAGCTCGGGCCGCTGATTCTATAGTGTACCTAAATGGCCGACAAATTCAGTGGCCGTGTTTTACAACG
 TCGTGA CTGGGAAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTTCGCCAGCTGGCGTAAT
 AGCGAAGAGGCCCGCACCGATCGCCCTTCC

> E-252_m48_SZ
 CGATATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGAC
 GCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCAGCTCACGGAACCTCCGCCTCAC
 AGGTTCAAAGTGATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAGCATTTGCCATGATACCTGGCTAATT
 TTGTAATTTTAGTAGAGACCAAGGATTTCTCATGTTGATAAGGTGTTCTTGAACTCCTGACCTCAGATGATCCATCT
 GATTTGGCCTCCAAACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCT
 AGACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAAATTCACCT
 GGCCGCTGTTTACAAACGTGCTGACTGGGGAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCC
 TTTCCGCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCC

> E-2531_m48_SZ
 CAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGA
 CGCGTTACGTATCGGATCCAGAAATTCGTGATTGCCCTGTACTCCAGCAGTTTGGGAGGCTGAGGCAGGTGAATCA
 CCTGAGGTCAGGAGTTTCATGACCAAGCCTGGCCAAACATGGTGAAACCCCGCTCTACTAAAATATAAAATTAGC
 CTGTCTAGTGTCTCATCTGTATCCAGCTGCTCAGGAAGCTGAGGCAGAAATTGCTTGAAACCTGGGAGGCAG
 ATGTTGCAGTTAGTCAAGATTGTGCAACACCCCTCCAATCTGAATTCGTGCAAGCTTCTCGAGCCTAGGCTAGC
 TCTAGACCAACAGTGTGGGGCCCGAGCTCGCGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAAATTC
 CTGGCCGTCGTTTACAAACGTGCTGACTGGGGAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCC
 CTTTCGCCAGCTGGCGTAATAGCGAAGAGGGCCCGCACCGATCG

> E-2532_m48_SZ
 CTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGACGC
 GTTACGTATCGGATCCAGAAATTCGTGATTGCCCTGTACTCCAGCAGTTTGGGAGGCTGAGGCAGGTGAATCACCTG
 AGGTCAGGAGTTTCATGACCAAGCCTGGCCAAACATGTTGAAACCCCGCTCTACTAAAATATAAAATTAGCCTGT
 CATGGTAGTGTCTCATCTGTAAATCCAGCTGCTCAGGAAGCTGAGGCAGAAATTGCTTGAAACCTTGGGAGGCAGATG
 TTGCAGTTAGTCAAGATTGTGCAACACCCCTCCAATCTGAATTCGTGCAAGCTTCTCGAGCCTAGGCTAGCTCT
 AGACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAAATTCACCT

Figure 3 Continued

GGCCGTCGTTTTACAAACGTCGTGACTGGGAAAACCCGTGGGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCT
TTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTNCACAAAGTTGGCAGCCTGAATGG

> E-258_m48_SZ
CCATATGATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAAGCTCGGTACCAACCGCATGCTGCAGAC
CGCGTTACGATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCGACAAATCTTGGCTCACTGCAACCTCTGCCCCC
CAGGTTCAAACGATTCCTGCTCAGCCTCCGAGTAGTGGGATTATAGGCACTTGCCACCCAGCCCAAGCTAAT
TTTTTGCAATTTTAGTAGAGACGGGGTTTCACTATGTGGCCAGGCTGTCTAGAACTCTGACCTTGTGATCCGCC
CGCCTTGGCCTCCCAACTGCTGGGAGTAATCTGAAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACC
ACAGTGTGGGGCCCGAGCTCGCGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAAATTCACCTGGCCGT
CGTTTACAAACGTCGTGACTGGGAAAACCCCTGGCGTTACCCAAAC

> E-261_m50_Ch1
TGACCTTGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAAGCTCGGTACCAACCGCATGCTGCAGACGCGTT
ACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCGACAAATCTCAGCTCACCGAAACCTCCGCCCTCACAGGT
TCAAAGTAATTCCTCGCTCAGCCTTCTGAGTAGTAGGATGACAAGCAATTTGCCATGATACCTGGCTAATTTGT
ATTTTAGTAGAGACCAAGGATTCATGTTGATAAGGTGTTCTTGAACCTCTGACCTCAGATGATCCATCTGATT
TGGCCTCCCAACTGCTGGGAGTACAGGCAATCTGAAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGA
CCACACGTGTGGGGCCCGAGCTCGCGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAAATTCACCTGGCC
GTGCTTTTACAAACGTCGTGACTGGGAAAACCCCTGGCGTTACCCAACTTAATCGCC

> E-267_m50_Ch1
TTACGCCAAGCTCTAATACGACTCACTATAGGGAAAGCTCGGTACCAACCGCATGCTGCAGACGCGTTACGTATCGG
ATCCAGAAATTCGTGATTGCTGTACTCCAGCAGTTTGGGAGGCCAAATCAGATGGATCATCTGAGGTCAGGAGT
TCAAAGAACCACTTATCAACATGAAGAAATCCTGGTCTCTAATAAATAACAAATAGCCAGGTATCATGGCAAA
TGCTTGTCATCCTAGCTACTCAGAAAGGCTGAGGCAGAGGAATCACTTGAACCTGTGAGCGGAGGTTTCGGTGAG
CTGAGATTGTGCAAAACACCTCCAAATCTGAAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTTAGACCACAG
TGTGGGGCCCGAGCTCGCGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAAATTCACCTGGCCGTGTTT
TACAACGTCGTGACTGGGAAAACCCCTGGCGGTACCCAACTTAATCGCCCTTGACGACACATCCCCCTTT

> E-269_m50_Ch1
CTTCCAAAGGNTAAAGNTCTAATATTACTCACTATAGGGAAAGCTCGGGCCCCCACTCATGTGCAGACGCGTTACGT
ATTGGATCCAGAAATTCGGGATTGGAGGGTGTGTACAATCTCTGTCAACCGAAACCTCCGCCCTCACAGGTTCAAG
TGATCCCTCTGCTCAGCCTTCTGATAGTAGGATGACAAGCAATTTGCCATGATACCTGGCTAATTTGTATTTT
AGTAGAGACCAAGGATTCCTTTATGTTGATAAGGGGGTCTTGAACCTGACCTCAGATTGATTCACTCTGATTGG
CCTCCCAACTGCTGGGAGTACAGGCAATCTGAATTCGTCAACAAAGCTCT

Figure 3 Continued

> E-285_m56_SZ
 GGTGAGAGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAAGCTCGGTACACGCATGCTGCAGACGCGTT
 ACGTATCGGATCCAGAAATTCGTGATTGCCGTGACTCCAGCAGTTTGGGAGGCTGAAGTGGTTGATTACCCGAG
 GTCAGGAGTTCCAGACCAGGTGACCACATGGAGAAACCTGTCTCTACTAAATAACAAATAGCCAGGTGT
 ATTGGTGGTGCCTGTATTCCAGCTACTTGGAGGCCGAGGAGAGATCGCTGGAACCCAGGAGCGGAGGT
 TGTGGTGAGCTGAGATTGTCAAAACACCCCCAATCTGAATTCGTGACAAAGCTTCTGAGCCTAGGCTAGCTCTA
 GACCACAGCTGTGGGGCCCGAGCTCGCGGCCGTGTATTCTATAGTGTACCTAAATGGCCGACAAATTCACCTG
 GCCGTGTTTTACAACTGCTGACTGGGAAACCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTT
 TCGCCAGCTGGCGTAATAAGCGAAGAGGCCCGCACCGATGCCCTTTCCAAACAGTTGCGCAAGCCTGAATGGCG

> E-286_m56_SZ
 GTTCTAATACGACTCACTATAGGGAAAGCTCGGTACCAAGCAATGCTGCAGACGCGTTACGTATCGGATCCAGAAT
 TCGTGATTGGAGGGTGTTCACAAATCTCAGCTCACCGAAACCTCCGCTCACAGGTTCAAGTGATTCTCTGCCT
 CAGCCTTCTGAGTAGTAGGATGACAAGCATTTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCAGG
 ATTCTTCATGTGTATAAGTGGTTCITGAACCTCCTGACCTCAGATGATCCATCTGATTTGGCTCCCAAACTGCTGG
 GAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTGAGCCTAGGCTAGCTTAGACCAACACGCTGTGGGGCCCCG
 AGCTCGGGCCGCTGTATTCTATAGTGTACCTAAATGGCCCGCACAAATCACTGGCCGTGCTTTTACAAACGTCGT
 GACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCG
 AAGAACCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGAAATTTGAAGCGT

> E-287_m56_SZ
 TAATTAACTCACTATAGGGAAAGCTCGGGAGCACGCAATGCTGAUACGGTTTCGTATCTGGATCCAGAAATTCGC
 GATTGCCCTGACTCCAGCAGTTTGGAGGCCAAATCAGATGGATCATCTGAGGCCAGGAGTTCAAGAACCCACT
 TATCAACATGAATAATCCTGGTCTCTACTAAATAACGAAATTAGCCAGGTATCATGGAAAATGCTTGTCAATCCTA
 GCTACTCAGAAAGGCTGAGGCAGAGGAATCACTTGAACCTGTGAGGCGGAGGTTTCGGTGAGCTGAGATTGGGCA
 AACACCTCCAATCTGAATTCGTCCGACAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCAACACGCGTGGGGCCC
 GAGCTCGCGGCCGCTGTATCTATT

> E-288_m56_SZ
 GTTCAGATCTAATANGACTCACTATCGGGAAAGCTCGGCACCAACGCATGCTGCAGACGCGTTACGTATCCGGATC
 CATGAATTCGTGATTGCCGTGACTCCAGCAGTTTGGAGGCCAAATCAGATGGATCATCTGAGGTCAAGGATTC
 AAGAACCACTTATCAACATGAAGAAATCCTGGTCTCTACTAAATAACAAATAGCCAGGTATCATGGCAAAATG
 CTTGTATCTCTAGCTACTCAGAAGGCTGAGGCAGAGGAATCACTTGAACCTGTGAGGCGGAGGTTTCGGTGAGCT
 GAGATTGTGCAAAACACCCCTCCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCAACAGTG

Figure 3 Continued

TGGGGCCCGAGCTCGGGCCGCTGCATTCTATAGTGTACCTAAATGGCCGCACAATTCACTGGCCGTCGTTTTT
A

> E-289_m56_SZ

TTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTGGTAACACGCATGCTGCAGACGCGTTACGTATCGG
ATCCAGAAATCGTGATTGCCCTGTACTCCAGCAGTTTGGGAGGCCAAATCAGATGGATCATCTGAGGTCAGGAGT
TCAAGAACCACCTTATCAACATGAAGATCCTGGTCTACTAAATAACAAATAGCCAGGTATCATGGCAAA
TGCTGTCTATCCTAGCTACTCAGAAAGGCTGAGGCAGAGGAATCACTTGAACCTGTGAGCGGAGGTTTCGGTGAG
CTGAGATTGTGCAAAACCCCTCCAATCTGAATTCGTGACAAAGCTTCGAGCCTAGGCTAGCTTAGACCACAG
TGTGGGGCCCGAGCTCGGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAATTCACTGGGCCGTCGTT
TTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTCGCCAGCT
GGCGTAATAGCGAAGAGGCCGACCCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGAAATTG

> E-290_m56_SZ

ATATTGATCATGATTACGCCAACGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGCATGCTGCAGAC
GCGTTACGTATCGGATCCAGAAATTCGTGATTGCCCTGTACTCCAGCAGTTTGGAGGCTGAAGTGGTTGATTACC
CGAGGTCAGGAGTTACAGACCAGGTTGACCAACATGGAGAAACCTGTCTACTAAATAACAAATAGCCAG
GTGTATTGGTGCCTGTAAATCCAGCTACTTGGAGGCCGAGGAGAAATCGTGAACCCAGGAGGCGG
AGGTTGTGTGAGCTGAGATTGTGCAAAACCCCTCCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGC
TCTAGACCACACGTTGTGGGGCCCGAGCTCGCGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAATTCA
CTGGCCGCTGTTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCC
CTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCC

> E-291_m56_SZ

TGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGCATGCTGCAGACGCGTT
ACGTATCGGATCCAGAAATTCGTGATTGGAGGCTGTTTGCACAATCTCAGCTCACGGAACCTCCGCCCTCACAGGTT
CAAGTGATTCTCTGCTCAGCCTTCAGAGTAGCTAGGATGACAAGCATTTGCCATGATACCTGGCTAATTTGTA
TTTTAGTAGAGACCAGGATCTTCATGTTGATAAGGTGGTCTTGAACCTCCTGACCTCAGATGATCCATCTGATTT
GGCTCCCAACCTGTGGAGTACAGGCAATCTGAATTCCTCGACAAGCTTCTCGAGCCTAGGCTAGCTCTAGAC
CACACCGTGTGGGGCCCGAGCTCGCGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAATTCACTGGCC
GTCGTTTTACAACNTCGTACTGGGAAACCCCTGNCGTACCCCACTTAATCNCCTTGCAGCACATCCCCCTTC
GCCAGNCTGGCGTAAATNANCGAANAGGCCCGCACCGATCGCCCT

> E-292_m56_SZ

ACGTCACGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGCATGCTGCAGACGCGTTACGTATCGGAT
CCAGAAATTCGTGATTGCCTGTACTCCAGCAGTTTGGGAGGCCAAATCAGATGGATCATCTGAGTCAGGAGTTC

Figure 3 Continued

AAGAACCACTTATCAACATGAAGAACTCTGGTCTCTACTAAATAACAAAATTAGCCAGGTATCATGGCAAATG
 CTGTATCCTAGCTACTCAGAAAGGTGAGGCAGAGGAATCACTTGAACCTGTGAGGGGAGGTTTCGGTGAGCT
 GAGATTGTGCAAAACACCTTCCAAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTTAGACCAACAGTT
 GTGGGGCCCGAGCTCGGGCCGCTGTATTTCTATAGTACCTAAATGGGGCGCAAAATTCACCTGGCCGTCGTTTT
 ACAACGTTCTGACTGGGAAAACCTGGCGTTACCCAACTTAATCGCCCTTTGCAGCACATCCCCCTTTTCGCCAG
 CT

> E-293_m56_SZ

TATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAGCATGCTTGCAGACGC
 GTTACGTATCGGATCCAGAAATTCGTGATTGGAGGTGTTGCACAAATCTCAGTCAACCGAAACCTCCGCCCTCACAG
 GTTCAAGTGATTCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAGCAATTTGCCATGATACCTGGCTAAATTT
 GTATTTTAGTAGAGACCAAGGATTCTTCATGTTGATAAGGTGTTCTTGAACCTCTGACCTCAGATGATCCATCTG
 ATTTGGCCTCCCAAACTGCTGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTA
 GACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGTATTTCTATAGTTCACCTAAATGGCCGCACAAATTCACCTG
 GGCCGTCGTTTTACAACGTCGTGACTGGGAAAACCTTGGCGTTACCCAACTTAATCGCCCTTGCAGCACATCCCCCT
 TTGCCAGCTGGCGTAATAGCGAAGAGGCCGCAACCCGATCGCCCTTCCCAACAGTTGGCGACGCTGAATG

> E-294_m740_SZ

TTACGCCAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAGCATGCTGTCAGACGCGTTACGTATCGG
 ATCCAGAAATTCGTGATTTGGAGGTGTTGCACAAATCTCAGTCAACCGAAACCTCCGCCCTCACAGTTCAAGTGAT
 TCCTCGCCTCAGCCTTCTGAGTAGCTAGGATGACAAGCAATTTGCCATGATACCTGGCTAAATTTGTATTTTAGTA
 GAGACAGGATTCTTCATGTTGATAAGGTGTTCTTGAACCTCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC
 AAAC'TGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTTAGACCAACACGTG
 TGGGGCCCGAGCTCGCGCCGCTGTATTTCTATAGTTCACCTAAATGGCCGCACAAATTCACCTGGCCGTCGTTTTA
 CAACGTCGTGACTGGGAAAACCTTGGCGTTACCCAACTTAATCGCCCTTGCAGCACATCCCCCTTTTCGCCAGCTGGC
 GTAATAGCGAAGAGGCCCGCACCCGATCGCCCTTCCCAACAGTTGGCGCAG

> E-295_m740_SZ

TATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAGCATGCTTGCAGACGC
 GTTACGTATCGGATCCAGAAATTCGTGATTGGAGGTGTTGCACAAATCTCAGTCAACCGAAACCTCCGCCCTCACAG
 GTTCAAGTGATTCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAGCAATTTGCCATGATACCTGGCTAAATTT
 GTATTTTAGTAGAGACCAAGGATTCTTCATGTTGATAAGGTGTTCTTGAACCTCTGACCTCAGATGATCCATCTG
 ATTTGGCCTCCCAAACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTA
 GACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGTATTTCTATAGTTCACCTAAATGGCCGCACAAATTCACCT
 GGCCGTCGTTTTACAACGTCGTGACTGGGAAAACCTTGGCGTTACCCAACTTAATCGCCCTTGCAGCACATCCCCC
 TTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCCGATCGCCCTTCCCAACAGTTTGGCGCAGCTGAA

Figure 3 Continued

```

> E-296_m57_Chl
CAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACACGCATGCTGCAGACGCGTTACGTATCGGATCCAG
AATTCGTGATTGGAGGTGTTTGACAAATCTCAGCTCACTGCAACCTCTGCCTCTGGGTTCAATTCATCTCTCTGC
CTCAGCCCTCCGAGTAGCTGGGATTACAGGCATGCCCGGCTAAATTTTGTATTTTAGCAGAGATCGGGGTTTTGC
CATGTTGCCCAGGCTGCTCGAACCTCTAACTTGTGATCTGCCACCTCGGCCTCCCAAACCTGCTGGAGTACA
GGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCACACAGTGTGGGGCCCGAGCTCGC
GGCCGCTGATTCTATAGTGCACCTAAATGGCCGCACAATTCACCTGGCCCGCTGTTTTACAACGTCGTGACTG
GGAAAACCTGGCGTTACCCAACTTAATCGCCCTTGCCAGCACATCCCCCTTTCCGCCAGCTTGGC

> E-297_m740_SZ
TATGACCATATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGACGCG
TTACGTATCGGATCCAGAAATTCGTGATTGGAGGTGTTGCACAATCTCAGCTCACCGAAACCTCCGCCCTCACAGG
TTCAAAGTGAATTCCTCTGCCTCAGCCTTCTGAGTAGTAGGATGACAAGCATTTGCCATGATACCTGGCTAAATTTGT
ATTTTAGTAGAGACCAGGATTCCTCATGTTGATAAGGTGGTCTTGAACCTCTGACCTCAGATGATCCATCTGATT
TGGCCTCCCAAACCTGCTGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGA
CCACACGTGTGGGGCCCGAGCTCGCGCCGCTGATTCTATAGTGTCACTAAATGGCCGCACAAATTCACCTGGCC
GTCGTTTTACAACGTCGTGACTGGGGAACCCCTGGCGTTACECAACTTAATCGCCTTGACGACACATCCCCCTTGG
CCAGCTGGCGTAATAGCGAAGAGGCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGAA
ATT

> E-298_m57_Chl
GTCCCGATCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGACGCGTTACGTATCGGATCC
AGAAATTCGTGATTGGAGGTGTTGCACAATCTCAGCTCACCGGAACCTCCGCCCTCACAGGTTCAAGTATTCCTC
TGCTCAGCCTTCTGAGTAGTAGGATGACAAGCATTTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGA
CCAGGATTCCTCATCGTTGATAAGGTGGTCTTGAACCTCTGACCTCAGATGATCCATCTGATTTGGCCTCCCAA
CTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTTAGACCACACGCTGTGG
GGCCCGAGCTCGCGCCGCTGATTCTATAGTGTCAACCTAAATGGCCGCACAATTCACCTGGCCGCTCGTTTAC
AACGCTGTGACTGGGAAACCCCTGGGCGTTACCCCAACTTAATCG

> E-299_m57_Chl
GTCAAGATCGAATAGGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCCAGCGGTTACGTATCGGATCC
AGAAATTCGTGATTGCCCTGACTCCAGCACTTTGGGAGGGCAAAATCAGATGGATCATCTGAGGTACGAGGTTCAA
GAACCATCCTTATCAACATGAAGAATCCTGGTCTCTACTAAATAACAACATTAGCCAGGTATCATGGCAAAATGC
TTGTATCCTAGCTACTACAAAGGCTGAGGCAGAGGAATCACTTGAACCTGTGAGGCGCAGGTTTTCGGTGAGCTG

```

Figure 3 Continued

AGATTGTGCAAAACACCTCCAATCTGAATTCGTGACAAAGCTCTCTCGAGCCTAGGCTAGCTTTAGANCAACAGTG
TGGGGGC

> E-300_m57_Chl
GTTGAAACGGCAAGATCTAATACGACTCACTATAGGGAAAGCTCGGACTACGCATGCTGCAGACGTTGACGT
ATCGGATCCAGAAATTCGTGATTGGAGGGCGTTTGGCAATCTTGACTAACTGCAACATCTCGCTCCAGGCTCAAG
CAATCTGCCCTCAGTTTCTGAGCAGCTGGGATTACAGATGAGCACTACCATGACAGGCTAAATTTTATATTTTAC
TAGAGGGGGGATTACCAATGTCGGCCAGGTTGGTCATGAACCTCTGACCTCAGGGGATTACCTGCGCTCGGCTC
CCAAACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAGCTTCTCGAGCCTAG

> E-304_m57_Chl
CTACGTACGCTCTAATACGACTCACTATAGGGAAAGCTCGGTACCAAGCATGCTGCAGACGCGTTACGTATCGGA
TCCAGAAATTCGTGATTGGAGGGTGTTCGACAAATCTCAGCTCACCGAAACCTCCGCTCACAGGTTCAAGTGATTC
CTCTGCCCTCAGCCTCTGAGTAGTAGGATGACAAGCATTTGCCATGATACCTGGCTAAATTTGTATTTTATAGTAGA
GACCAGGATTCCTCATGTTGATAAGGGGTTCTTGAACCTCTGACCTCAGATGATCCATCTGATTTGGCCTCCCAA
ACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCACACGTTGTG
GGGCCCCGAGCTCGGGCGGCTGATTTCTATAGTGCACCTAAATGGCCCGCAACATTCACCTGCGCGTGGTTTAC
AAGCTGCTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCCGCCAGC

> E-305_m740_SZ
TTACGCCAAGCTCTAATACGACTCACTATAGGGAAAGCTCGGTACCAAGCATGCTGCAGACGCGTTACGTATCGG
ATCCAGAAATTCGCGATTGGAGGGTGTTCGACAAATCTCAGCTACCGAAACCTCCGCTCACAGGTTCAAGTGATT
CCTCTGCCCTCAGCCTCTGAGTAGTAGGATGACAAGCATTTGCCATGATACCTGGCTAAATTTGTATTTTATAGTAG
AGACCAGGATTCCTCATGTTGATAAGGTGGTCTTGAACCTCTGACCTCAGATGATCCATCTGATTTGGCCTCCCA
AACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAGCTTCTCCGAGCCTAGGCTAGCTCTAGACCACACGTTG
TGGGGGCCGAGCTCGGGCGGCTGTATCTATAGTGCACCTAAATGGCCCGCAACATTCACCTGCGCGTGGTTTAA
CAACG

> E-308_m74_SZ
TTACGTCAGGCTCTAATACGACTCACTATAGGGAAAGCTCGGTACCAAGCATGCTGCAGACGCGTTACGTATCGG
ATCCAGAAATTCGTGATTGGAGGGTGTTCGACAAATCTCAGCTACCGAAATCTCCGCTCACAGGTTCAAGTGATT
CCTCTGCCCTCAGCCTCTGAGTAGTAGGATGACAAGCATTTGCCATGATACCTGGCTAAATTTGTATTTTATAGTAG
AGACCAGGATTCCTCATGTTGATAAGGTGGTCTTGAACCTCTGACCTCAGATGATCCATCTGATTTGGCCTCCCA
AACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCACACGTTG
GGGGGCCGAGCTCGGGCGGCTGTATCTATAGTGCACCTAAATGGCCCGCAACATTCACCTGCGCGTGGTTT

Figure 3 Continued

> E-309_m74_SZ
AGGCAAGATCTAATACGACTCACTATAGGGAACCGCTCGGTACCAACGATGCTGCAGACGCGTTACGTATCGGAT
CCAGAAATTCGTGATTGCCTGACTCCACGAGTTTGGAGGCCAAATCAGATGGATCATCTGAGGTCAGGAGTT
CAAGAACCCACCTTATCAACATGAAGAACTCTGCTCTACTAAAAATACAACATTAGCCAGGTATCATGGCAAAT
GCTTGTATCCTAGTACTCAGAAAGGCTGAGGCAGAGGAATCACTTGAACCTGTGAGGCGGAGGTTTCGGTGAGC
TGAGATTGGGCAAAACACCTCCAATCTGAATCTCTGACAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCCACG
TGTGGGGCCCCGAGCTCGCCGTCGCTGTAATTTCTATAGTCGTC

> E-310_m74_SZ
TTACGTCAACCGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGACGCGTTACGTATCG
GATCCAGAAATTCGTGATTGGAGGTGTTTGCAAACTCTCAGCTCACTGCAACCTCTGCCTCTCAGGTTCAAGTGAT
TCTCCTGCCTCATCTCCCAAGTAGCTGGGTTACAGGCATGCACCAACACAGCTGGCTAAATTTTGTATTTTAGT
AGAGATGGGGTTTCAACCATGTTGGACAGGCTAGTCTTGAACCTCCTGACCTCAAGTGAATCCACCCGCTCAGCCCT
CAAACTGCTGGGAGTACAGGCAATCTGAATTCGTCGACAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCAACACG
GTGGGGCCCCGAGCTCGGCGCTGTAATTTCTATAGTGCACCTAAATGGGCGGCACAATTTCACTGGCCGTCGCT
TTACAACGTCGCTGACTGGGAAAACCCCTGGCGTTACCCAACTTAA

> E-311_m74_SZ
AAACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGACGCGTTACGTATCGG
ATCCAGAAATTCGTGATTGCCTGACTCCAGCAGTTTGGAGGCCGAGGTGGTGATCACCTGAGGCTGAGAGT
TCGAGACCAGCCTAGCCAAACATGGTGAAACCCCTGTCTCTACTAAAAATACAATAATTAGCCAGGCAAGGCAGCAC
ACGCTGTAAATCCACCTACTCGGGATGCTGAGGCATGAGAAATCGCTTGAACCTGGGAGGTGGAGCTTGCAGTGA
ACTGAGATTGTGCAAAACACCTCAATCTGAATTCGTCGACAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCAACG
TGTGGGGCCCCGAGCTCGGCGCTGTAATTTCTATAGTGCACCTAAATGGGCGGCACAATTTCACTGGCCGTC
GTTTACAACGTCGCTGACTGGGAAAACCC

> E-312_m74_SZ
CGAATACGACTACTACGGAAGCTCGGTACCAACGATGCTGCACACGCGTTACGCATCGGATCCAGAAATTCGT
GATTGCCGTGACTCCAGCAGTTTGGAGGGCAAAATCAGATGGATCATCTGAGGTCAAGGTTCAAGAACCCACT
TATCAACATGAAGAACTCTGCTCTACTAAAAATACAATAATTAGCCAGGTATCATCGGCAAAATGCTTCGTCATCC
TAGTACTCAGAAGGCTGAGGCAGAGGAGTCACTTGAACCTGTGAGGCGGAGGAAACGGCGAGATGAGATTGTG
CAAAACACCTCCAATTTGAAATTCGTCGACAAGCTTCTCCGAGCTTAGGCTAGCTCTAGACCCACACGTTGTGGGG
GCCCCGAGCTCGCG

> E-313_m74_SZ

Figure 3 Continued

TATGACATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGCATGCTGCAGACGGGT
 TACGTATCGGATCCAGAAATTCGTGATTGCTGTACTCCAGCAGTTTGGAGGCTGAGACAGGTGGAACACATTGA
 GGCCAGGAGTTTGCAACCAGCCTGGCCAAACATGGTGAACCCCTATCTCTACCACAAAAAAATAAAAAA
 AAAAAAATAATTAGCCTGGCATGGTGGTGGCTGTATCCAGCTACTCAGGAGGCTGAGGCACGAGAAATC
 GCTTGAACCCGGTGGCAAGGTTGACAGCATCCGAGATTGTGCAAAACACCCCTCAATCTGAATTCGTGACAAG
 CTTCTGAGCCTAGGCTAGCTCTAGACCACACAGTGTGGGGCCGAGCTCGGGCCGCTGATTCTATAGTGTAC
 CTAATGGCCGCACAATTCACTGGCCGCTGTTTACAAACGTGCTGACTGGGAAAAACCCCTGGCGTTACCCAACTTAA
 TCGCCTTGACGACATCCCCC

> E-315_m74_SZ

TGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGCATGCTGCAGACGGGTACGTATC
 GGATCCAGAAATTCGTGATTGGAGGTGTTTGCAAAATCTCGGCTCACTGCAACTTCTGCCTCTGGGTTACACACTG
 TTCTCTGCCTAAGCCTCCCAAGTAGCTGGACTACAGGCGGTGCCACCATGCCGGCTAATTTTGTATTTTAA
 GTAGAGAAAGGGTTTCAACCGTTTAGCCAGGATGGTCTCGATCTCCTGATATTGTGATCCACCCGCCCTCGGCTCT
 CAAACTGCTGGAGTACAGGCAATCTGAATTCGTGCAAAAGCTTCTCGAGCCTAGGCTAGCTTAGACCACACGT
 GTGGGGCCCGAGCTCGGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAAATTCACCTGGCCGCTGTTTT
 ACAACGTGCTGACTGGGAAAAACCCCTGGGTTACCCAACTTAATCGCCTTGACAGCACATCCCCCTTTCGCCAGCTGG
 CGTAATAGCGAAGAGGCCGCAACCGATCGCCCTTCCCAACAGTTGGC

> E-314_m74_SZ

ATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGCATGCTGCAGACGGGTACGTATCG
 GATCCAGAAATTCGTGATTGGAGGTGTTTGCAAAATCTCGGCTCACTGCAACTTCTGCCTCTGGGTTACACACTGT
 TTCTCTGCCTAAGCCTCCCAAGTAGCTGGACTACAGGCGGTGCCACCATGCCGGCTAATTTTGTATTTTAA
 GTAGAGAAAGGGTTTCAACCGTTTAGCCAGGATGGTCTCGATCTCCTGATATTGTGATCCACCCGCCCTCGGCTCT
 CAAACTGCTGGAGTACAGGCAATCTGAATTCGTGCAAAAGCTTCTCGAGCCTAGGCTAGCTTAGACCACACGT
 GTGGGGCCCGAGCTCGGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAAATTCACCTGGCCGCTGTTTT
 ACAACGTGCTGACTGGGAAAAACCCCTGGGTTACCCAACTTAATCGCCTTGACAGCACATCCCCCTTTCGCCAGCTGG
 CGTAATAGCGAAGAGGCCGCAACCGATCGCCCTTCCCAACAGTTGGC

4> E-319_m74_SZ

TATGACCATGATTACGCCAAGCTCTAATACCGACTCACTATAGGGAACGCTCGGTACCAACGCATGCTGCAGACG
 CGTTACGTATCGGATCCAGAAATTCGTGATTGCTGTACTCCAGCAGTTTGGGAGGCCGAGGTGGTGGATCACCT
 GAGGTACAGAGTTTCGAGACCAAGCCTGGCCAAACGTAGTGAAAAACCCCATCTCTACTAAAAATACAAAAAACTTAG
 CCAGGGTGGTGGGCACCTATAATCCAGCTACTTAGGAGGCTGAGGTGGAGAAATCGTTTGAACCTGGGAG
 GGAGAGTTGCAGTGAGCTGAGATTGTGCAAAACACCCCTCAATCTGAATTCGTGCAAAAGCTTCTCGAGCCTAGG
 CTAGCTCTAGACCACACGTGTGGGGCCGAGCTCGGGCCGCTGATTCTATAGTGTACCTAAATGGCCGCAC

Figure 3 Continued

AATCACTGGCCGTCGTTTACAACGTCGTGACTGGGAAACCCTGGCGTTACCCAACTTAATCGCCCTTGCAGCA
CATCCCCCTTCGCCAGCTGGCGTAATAACGAAGAGCCGACACCGA

9J> E-320_m74_SZ
ATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAGCATGCTGCAGACGCGTTACGTA
TCGGATCTGAATTCGTCGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCACACACGTCGTGGGGCCCCGAGCTCGC
GGCCGCTGTAATCTATAGTGCACCTAAATGGCCGCACAATCACTGGCCGTCGTTTACAACGTCG
TGACTGGGAAACCCTGGCGTTACCCAACTTAATCGCCTTGACGACACATCCCCCTTTCGCCAGCTGGCGTAATAGC
GAAAGGCCCCGACCGATCGCCCTTCCCAACAGTTGGCAGCCTGAATGGCGAATGGAAATTTGTAAGCGTTAATA
TTTTGTTAAATTCGCGTTAAATTTTTGTTAAATCAGCTCATTTTTTAAACCAATAGCCGAAATCGGCAAAATCCCT
TATAAATCAAAGAATAGACCGAGATAGGGTTGAGTGTGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAAC
GTGGACTCCAACGTCAAAGGGCGAAACCCGTCTATCAGGGCGATGGCCCACTAGCTGAACCATCAACCTTAATCA
AGTTTTTGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGGAGCC

8> E-321_m74_SZ
TATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAGCATGCTGCAGACGCG
TTACGATTCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCGGCTCACTGCAACTTCGCCTCCTGGG
TTCACACTGTTCTCCTAGCTAAGCTCCCAAGTAGCTGGGACTACAGGCGGTGCCACCATGCCCGCTAATTTT
TGTAATTTAGTAGAGAAAGGGTTTCAACCGTTAGCCAGGATGGTCTCGATCTCCTGATAATTTGTATCCACCCGC
CTCGCCCTCTCAAACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAG
ACCAACAGTGTGGGGCCGAGCTCGCGCCGCTGTATCTATATAGTGCACCTAAATGGCCGCACAATTCACTGG
GCCGTGTTTTACAACGTCGTGACTGGGAAACCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTT
TCGCCAGCTGGCGTAATAGCGAAAGAGGGCCCGCACCCGATCGCCCTTCCCAACAGTTGGCAGCCTGAATG

3> E-322_m74_SZ
ACGTACGCTCTAATAACGACTCACTATAGGAAAGCTCGGTACCAGCATGCTGCAGACGCGTTACGTATCGGATC
CAGAAATCGTGAATTGGAGGGTGTTCACAAATCTTGGCTCACTGTAACTCTGCCTCCTGGTTCAAGTAATCTC
CTGTCTCAGCCTCTGAGTAGCTAGGATTACTGGTGCCCGCCACCATGCCCGGCGAATTTTGTATTTTAGTAGA
GATGGGTTTCACTATGTTGCCAGGGTGGTCTCAAACTCTGACCTCAAGTATCCACCTGCTCAGCTTCCCAA
ACTGCTGGGAGTACAGGCAATCTGAATTCGTCGACAAAGTTCTTCGAGCCTAGGCTAGCTAGACCAACAGGTG
GGGCGCCGAGCTCGGGCGCTGTATCTATAGTGTACCTAAATGGCCGCAAAATTCACCTGGCCGTCGTTTACA
ACGTGCTGACTGGGAAACCCCTGGGTTACCCAACTTAATCGCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGT
AATAGCGAAGAGGCCCGCACCCGATCGCCCTTCCCAACAGATTGGCAGCCTGAATGGCGAATGGAAAT

7I> E-323_m74_SZ

Figure 3 Continued

AAACGCAAGCTCTAATACGACTCACTATAGGAAAGTTCCGTACCAAGCATGTCTGCAGACGCGTTACGTATCGGA
 TCCAGAATTGCGTGAATGCGTACTCCAGCACAGTTTGGGAAGCCGAGGTGGGAAGATCGCTTCGAGGTCAGGAG
 TTCAAGACCAAGCTGGCCAAACATGGCAAAACCTCGTCTACTAAATAATACAAAACCTTAGCCAGGCCGTGTTGGC
 ATCGCACCCATAGTCCCTGCTAATCAGGAGGCTGAGGCTTGAACATGGAGGTGGAGCTGCAGTGAGCTGAGAT
 TGTGCAAAACACCCCTCCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCACACGCTGTGGGG
 GCCGAGCTCGCGGCCGCTGTATTCTATAGT

4> E-324_m74_SZ

GTAAAGATCTAATACGACTCACTATAGGAAAGCTCGGTACCAGCATGTCTGCAGACGCGTTACGTATCGGATCC
 AGAATTGCGTGAATGGAGGGTGTTCACAAATCTCAGCTCACTGCAACCTCCACCTCTAGGACTCAAGTGATTATCC
 CACCTCAACCTCCCAAGTAGCAGGGACTGAAGGTGTGCTTGGCCAGCCAGCTAAATTTTGTGATTTTGTGAGA
 GACGGATTTTCACCATGTAGCCCAAGGTGGTCTCAAACTCCTGAGCTTAAGCGATCCACCTTCCTGGACCTCCCAA
 ACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCACACGCTGTG
 GGGCCCGAGCTCGCGCGCTGTATTCTATAGTGTCACTAAATGGCCGCAACAATTCACCTGGCCGCTGTTTAC
 AACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCG
 TAATAGCGAAGAGGCGCGCACCGATCGCCCTTCCACAGTTGCGCAGCCTGAATGGCGAATGGAAATTTAA

1J> E-325_m74_SZ

CAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAGCATGCTGCAGA
 CGCGTTACGTATCGGATCCAGAAATTCGTGATTTGCTTGTACTCCAGCAGTTTGGGAGGCTGAGGCAGGTGAATC
 ACCTGAGTCAGGAGTTTCATGACCAAGCCTGGCCAAACATGGTGAAACCCCGCTCTACTAAAAATATAAAATTAG
 CCTGTATGTTAGTGTCTATCTGTAAATCCAGCTGCTCAGGAAGCTGAGGCAGAAATTTGCTTGAAACCTGGGAGGC
 AGATGTTGCAGTTAGTCAAGATTGTGCAACACCCCTCCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTA
 GCTCTAGACCACACGCTGTGGGGCCCGAGCTCGCGCGCGCTGTATTCTATAGTGTCACTAAATGGCCGCAACAAT
 CACTGGCCGCTGTTTTACAACGTCGTGACTGGGAAACCTGGCGCTTAC

3J> E-149_m48_SZ

ACGCTTCCAAGGATTCAACAAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAGCATGCTGCAGACGC
 GTTACGTATCGGATCCAGAAATTCGTGATTAGGGTGTTCACAAATCTCGGCTCATTGTAACTCTGCCTCCAGGT
 TGCAGTGATTCTCCTGTCTCAGCCTCCCAAGTAGCTGGCATTACAGGTTCCCACTACACCCAACTAATTTTGT
 ATTTTAGCAGAAATGGGGTTTCCCAATGTTGACCTGGCTGTCTCGAACTCCTGACCTTGTGATCTGCCGCCCTTG
 GCCTCCAAACTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACC
 ACAGCTGTGGGGCCCGAGCTCGCGCGCGCTGTATTCTATAGTGTCACTAAATGGCCGCAACAATTCACCTGGCCGT
 CGTTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCC
 AGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGGCGCAGCCTGAATGGCGGA

Figure 3 Continued

3> E-302_m57_Chr1
 GATTAGGCCAAGCTCTAATACTACTACTACTATAGGGAAGCTCGGTACCAAGCATGCTGCAGACGCGTTACGTATC
 GGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTG
 ATTCTCTGCCCTCAGCCCTTCTGAGTAGTAGGACGACAAAGCATTTGCCATGATACCTGGCTAAATTTTGTATTTTAG
 TAGAGACCAAGGATTCTTCATGTTGATAAGGTGGTTCTTGAACTCCTGACCTCAGATGATCCACCTGATTTGGCCTC
 CCAAACCTGTGGAGTAGACAGGCAATCTGAATTCGTGCAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCAACAG
 TGTGGGGGCCGAGCTCGCGGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAATTCACCTGCGCCGTCGTTT
 TACAACGTGCTGACTGGGAAAACCTG

5> E-119m57Chr1
 CAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAAGCATGCTGCAGA
 CGCGTTACGTATCGGATCCAGAAATTCGTGATTGCTGTACTCCAGCAGTTTGGGAGGCAGAGGCAGGTGGATCA
 CCTGAGTICGGGAGTTCGAGAACCGCTGACCAACATGGAGAAACCCCGTCTCTGCTAAATAACAAAATTAGCT
 AGGTATGTTGTTACTTGGCCGTAATCCAGCTATTCAGAAAGCTGAGGCAGGAGAGTCACTTGAACCCAGGAGTC
 AGAGTTGCAGTCAGCTGAGATTGTGCAACACCCCTCCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCT
 AGCTCTAGACCACACGTTGTGGGGCCGAGCTCGCGCCGCTGTATTCTATAGTGTACCTAAATGGCCGCACAA
 TTCACCTGGCCGCTGTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACAT
 CCCCCTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGGCAGCCCTGAAT
 GGCGAAATGG

[> E-120m57Chr1
 AATAGCTATGCCCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGTATGCTCGGAGCTAGGCAATGCTGCA
 GACGCGTTACGCATTACGATCCAGATCCAGAGATTGGAGTGGCTGGCGTAATACTGGTTTAGTGGGACCTGTG
 CCTCCGGGTTCCAGGTGTGCTAGTGTGTTGAACCTCCTGAGCATCAATTGGATAACAGTAGCCTCTCACCAATGCTCA
 TCTTGTGCTTGTATTTGGTGGCAGCGGTCCACCAATGCCGTTATGCTGAACCTCGGACTCATCACTTAAATTAACCA
 CCTGCCCTCAGACTCCGAAACTGCTGTTAGTACAGGCAATCTGCATTGCTGCAATCTTCTACAGCCTAGGCTAGC
 TATAGACCACACTTGACCACGGCCCGAGCTCCCGCCGCTTGGAATCTATAGTGTCAATAAAGGCCCGAACAATT
 CACTGCACCCGTAGTTT
 Sorry, no matches found

5> E-166m50Chr1
 AACAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAAGCATGCTGCA
 GACGCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCGGCCCACTGCAACCTCCGCCCT
 CCCGGGTGCAAGCAGTTCTCTACCTCAGCCTCCTGAGTAGTAGGATTACAGGCACACCTGGCTAATTTTGTGGT
 TTTAGTAGAGACGGCGTTTCACCATGTTGGCTAGGCTGGTCTCGAAGCTCTCACCTCACTCAAAATGATCCACCTGCCTCA

Figure 3 Continued

GCCTCCCAAACCTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACC
 ACACGTGTGGGGCCCGAGCTCGCGGCCGCTGTATCTATAGTGTACCTAAATGGCCGCACAAATTCATCTAGGCGGT
 CGTTTACAAACGTCTGTGACTGGGAAAACCTTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCC
 AGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCTTCCCAACAGTTGCCAGCCTGAATGGCGAATGGAAAT
 TGTAAAGCCCGTTAATA

2> E-167m50Ctrl

ACTTATGACATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGAC
 GCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCAGCTCACCGAAACCTCCGGCCTCAC
 AGGTTCAAAGTATTCCTCTGCCTCAGCCTTCTGAGTAGTAGGATGACAAGCATTTGCCATGATACCTGGCTAATT
 TTGTATTTTAGTAGAGACCAGGATTCTCAITTTGATAAGGTGTTCTTGAACCTCTGACCTCAGATGATCCATCT
 GATTGGCCTCCCAAACCTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCT
 AGACCACACGTGTGGGGCCCGAGCTCGCGGCCGCTGTATCTATAGTGCACCTAAATGGCCGCACAAATTCACCT
 GGCCGTCGTTTACAAACGTCTGTGACTGGGAAAACCTTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCT
 TTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCTTCCCAACAGTTGCCAGCCTGAATG

5> E-169m50Ctrl

AAGCTTGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGAC
 GCGTTACGTATCGGATCCAGAAATTCGTGATTGCTGTACTCCAGCAGTTGGGAGGCTGAAGTGGTTGATTACC
 CGAGGTCAGGAGTTCCAGACCAGGTTGACCAACATGGAGAAACCTCTCTACTATAAAATACATAATTAGCCAG
 GTGTATTGGAGCGTGCCTGTATTCCAGCTACTTGGGAGGCCGAGGAGGAATCTGTGGAACCCACGATGGC
 GGAGGTTGTGGAGAGCTGAGATTGTGCAAAACACCTCCAATCTGAATTCGTCTACAAGCTTCTCGAGCCTAGGTTA
 GCTCTAGACCACACGTGTGGGGCCCGAGCTCGCGGACGCTGTATTCTATAGTGTACCTAAATGGCCGCACAAAT
 TCACTGGCCGACGTTTACAACGTGGTG

2> E-270m50Ctrl

CTCACTATAGGGAAGCTCGGTACCAACGATGCTGCAGACGCTTACGTATCGGATCCAGAAATTCGTGATTGCCT
 GTACTCCAGCAGTTTGGGAGGCCAAATCAGATGGATCATCTGAGGTGAGGTTCAAGAACCACTTATCAACA
 TGAAGAAATCCTGGTCTCTACTAAAAATACAAAATAGCCAGGTATCATGGCAAATGCTTGTCTATCTAGCTACTCA
 GAAGGCTGAGGCAGAGGAATCACTTGAACCTGTGAGGCGGAGGTTTCGGTGAGCTGAGATTGTGCAAAACACCCCTC
 CAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTAGACCACACGTTGTGGGGCCCGAGCTCGCGG
 CCGCTGTATTCTATAGTGTACCTAAATGGCCGACAAATTCACCTGGCGTCTTTTACAACGTCGTGACTGGGAAA
 ACCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCG
 CACCGATCGCCCTTCCCAACAGTTGCCAGCCTGAATGGCGAATGGAAATGTAAAGCGTTAATATTTTGTAAAT
 TCGCGT

Figure 3 Continued

6> E-271Im50Ctrl
 TTGCCCATGCTTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAAGCAATGCTGCAGACGCGTT
 ACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCAGCTCACCATGACCTCTGCCCTCTGGGTT
 CAAGCATTTCTTGGAAGTCAAGCTCTGAGTAGTGGAATTACAGGGAATCGCCACCATGCCCAGCTAATTTTGTA
 TGTTTAGTAGAGACAGGGTTTCTCCAAATTTGTCAGGCTGGTCTCGAACTCCCGACCTCAGGTGATCGGCCCGCCT
 TGGCCTCCCAAACATGCTGGGAGTACAGGCAATCTGAATTCGTCGACAAGCTTCTCGAGCCTAGGCTAGCTCTAGA
 CCACACGTGTGGGGCCCGAGCTCGCGGCCGTGTATCTATAGTGCACCTAAATGGCCGACAAATTCACCTGGCC
 GTCGTTTTACAACGTGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACATCCCCCTTTCCG
 CCAGCTGGCGTAATAGCGAAGAGGGCCCGACCGATCGCCCTTCCCAACAGTTGGCGAGCCTGAATGGCGA

0> E-272m50Ctrl
 CAATACCGCTTGACCATGATTACGCCAAGCTCTAATACGACTACTATAGGAAAGCTCGGTACCAAGCAATGCTGC
 AGACGCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCAGCTCACTGCAGCCTCCTCC
 CTCTGAGGTCAAGTGATACTGCTGCCCTCAGCCTCCTGAGTAGTGGATTACAGGCAOCCACCAACCCCTGGCC
 AATTTTGTATTTTAGTAGAGACAGAGTTTCAACATGCTGGCCAGGCTGGTCTCAAACTCCTGCCCTCAGATGTTT
 CACCCACCTTGGCCTCCCAAACATGCTGGAGTACAGGCAATCTGAATTCGTCGACAAGCTTCTCGAGCCTAGGCTA
 GCTTAGACCAACACGTGTGGGGCCCGAGCTCGCGGCCGTGTATCTATAGTGCACCTAAATGGCCGACAAAT
 CACTGGCCGTGTTTTACAACGTGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATGCGCTTGACGACACATCC
 CCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGGCCCGACCGATCGCCCTTCCAAACAGTTGGCGAGCCTG

2> E-273m50Ctrl
 GCTCGGTACCAAGCATGCTGCAGACGCGTTACGTATCGGATCCAGAATTCGTGATTGGAGGGTGTTCACAAATCT
 CAGTCAACCGAAACCTCCGCCCTCAGAGTTCAAGTGATTCTCTGCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
 CAITTTGCCATGATACCTGGCTAATTTGTATTTTAGTAGAGACAGGATTTCTTTATGTTGATAAGGTGGTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCCAAACATGCTGGAGTACAGGCAATCTGAATTCGTCGACA
 AGCTTCTCGAGCCTAGGCTAGCTCTAGACCAACACGTGTGGGGCCCGAGCTCGCGGCCGTGTATTTCTATAGTGC
 ACCTAAATGGCCGCACAATTCACCTGGCCGCGTTTACAACGTGCGGACTGGGAAACCCCTGGCGTTACCCCAACT
 TAATCGCCTTGACGACACATCCCC

2> E-275m50Ctrl
 ACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAAGCATGCTGCAGACGCGTTAC
 GTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCAGCTCACCGAAACCTCCGCCCTCAGAGTTCA
 AGTGAATCCTCTGCTCAGCCTTCTGAGTAGGATGACAAAGCATTTGGCATGATACCTGGCTAATTTTGTAATTT
 TTAGTAGAGACCAAGGATTTCTCATGTTGATAAGGTGGTCTTTGAACCTCCTGACCTCAGATGATCCATCTGATTTGG
 CCTCCCAAACCTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTTAGACCA
 CACGTGTGGGGCCCGAGCTCGCGGCCGTGTATTTCTATAGTGCACCTAAATGGCCGACAAATTCACCTGGCCGTC

Figure 3 Continued

GTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACACATCCCCCTTTGCGCA
GCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAAT

0> E-279m50Chl

AAGACCATGATAACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCACGCAATGCTGCAGAGCGGT
TACGTATCGGATCCAGAAATTCGTGATGGAGGGTGTTCGACAAATCTCAGCTCACTGACGCCTCCTCCCTCTGAGG
TCAAGTATTCGTGCTCAGCCTCCTGAGTAGTGGATTACAGGCACCCACCAACCCCTGGCCAAATTTTG
TATTTTGTAGAGACAGAGTTTCAACATGCTGGCCAGGCTGGTCTCAAACTCCTGCCCTCAGATGTTCCACCCAC
CTTGGCCTCCCAAACTGCTGGGAGTACAGGCAATCTGAATTCGTCGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAG
ACCACAGTGTGGGGCCCGAGCTCGGGCCGCTGATTCTATAGTGTCACTAAATGGCCGCACAAATTCACCTGG
CCGTGCTTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACACATCCCCCTT
CGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATG
GAAAT

2> E-281m50Chl

AACAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCACGCAATGCTGCA
GACCGTTACGTATCGGATCCAGAAATTCGTGATGGAGGGTGTTCGACAAATCTCAGCTCACGAAACCTCCGCCT
CACAGTTCAAGTATTCCTCTGCCCTCAGCCTCTGAGTAGCTAGGATGACAAAGCAATTTGCCATGATACCTTGGCTA
ATTTTGTATTTTGTAGAGACAGGATTTCTTCATGTTGATAAGGTGGTTCCTTGAACCTCCTGACCTCAGATGATCCA
TCTGATTTGGCCTCCCAAACTGCTGGGAGTACAGGCAATCTGAATTCGTCGACAAAGCTTCTCGAGCCTTAGGCTAGC
TCTAGACCACACGTTGGGGCCCGAGCTCGGGCCGCTGATTCTATAGTGTACCTAAATGGCCGCACAAATTC
CTGGCCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACACATCCCC
CTTTCGCCAGCTGGCGTAATAACGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAA

2> E-283m56SZ

AACAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCACGCAATGCTGCA
GACCGTTACGTATCGGATCCAGAAATTCGTGATGGAGGGTGTTCGACAAATCTTGGCTCACTGTAACTCTGCT
CTTGGGTCAAGTAAATCTCTGTCTCAGCCTCCTGAGTAGCTAGGATTACTGGTCCCGCCACCATGCCCGGCAA
ATTTTGTATTTTGTAGAGATGGGTTCACCTATGTTGCCAGGGTGGTCTCAAACTCCTGACCTCAAGTATCC
ACCTGCTTCAGCTTCCCAAACTGCTGGGAGTACAGGCAATCTGAATTCGTCGACAAAGCTTCTCGAGCCTTAGGCTAG
CTTAGACCACACGTTGGGGCCCGAGCTCGGGCCGCTGATTCTATAGTGTACCTAAATGGCCGCACAAATTC
ACTGGCCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACACATCCC
CCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCTTCCCAACAGTTGCGCAGCCTGA

2> E-284m56SZ

Figure 3 Continued

AGCTATGACCATGATTACGCCAAGCTCTAATAACGACTCACTATAGGAAAGCTCGGTACCAACGCATGCTGCAGAC
 GCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGTGTTGCACAATCTCAGCTCACCGAAACCTCCGCCTCAC
 AGGTTCAAGATTCTCTGCCCTCAGCCTTCTGAGTAGTAGGATGACAAGCAATTTGCCATGATACCTGGCTAATT
 TTGTAATTTTAGTAGAGACCAAGGATTCTTCATGTTGATAAGGTGGTCTTGAACTCCTGACCTCAGATGATCCATCT
 GATTGGCCTCCCAAACCTGCTGGAGTACAGGCAATCTGAATTCGTGCAAGCTTCTCGAGCCTAGGCTAGCTCT
 AGACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGATTCTATAGTGTCACTAAATGGCCGCACAATTCACCT
 GGCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCT
 TTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCCGATCGCCTTCCCAACAGTTGGCAGCCTGAATGGCGAAT
 GGAAATTGTAAAGCG

7> E-61m34BD

TTAAACAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAACGCATGCT
 GCAGACGGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGTGTTGCACAATCTCGGTTCACTGCAACTCTG
 CCTCCAGGTTCAAGCAATTATCTGCTCAGCCTCCCGAGTAGCTGGGATTACAGGTGCCCGCCACCACTCAGC
 TAATTTTCGTATTTTAGTAGAGACGGTTTCACCACTTTGGCTAGGCTGGTCTTGTAGCTCCTGACTGCGTGATCCAC
 CCGCCTTGGCCCCCAAACTGCTGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCT
 CTAGACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGATTCTATAGTGTCACTAAATGGCCGCACAATTCAC
 CTGGCCGCTGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCC
 CTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCCGATCGCCTTCCCAACAGTTGGCAGCCTGA

2> E-62m34BD

CTTGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAACGCATGCTGCAGACGCG
 TTACGTATCGGATCCAGAAATTCGTGATTGGAGGTGTTGCACAATCTTGGCTCACTGTAAACCTCTGCCTCCTGGG
 TTCAAAGTAATTCCTGTCTCAGCCTCCTGAGTAGCTAGGATTACTGGTGCCCGCCACCATGCCGGCAAAATTTT
 GTATTTTGTAGAGATGGGTTTCACTATGTTGCCAGGGTGTCTCAAACCTCTGACCTCAAGTGATCCACCTG
 CTTACGCTTCCCAAACCTGCTGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTCTA
 GACCACACGTGTGGGGCCCGAGCTCGGGCCGCTGATTCTATAGTGTCACTAAATGGCCGCACAATTCACCTG
 GCCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTT
 TCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCCGATCGCCTTCCCAACAGTTGGCAGCCTGAATGGCGAAT
 GGAAATTGTAAAGCGTTAATAT

2> E-63m34BD

AACAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAACGCATGCTGCA
 GACCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGTGTTGCACAATCTCAGCTCACCGAAACCTCCGCCT
 CACAGGTTCAAGTATCTCTGCCCTCAGCCTTCTGAGTAGTAGGATGACAAGCAATTTGCCATGATACCTGGCTA
 ATTTGTATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTCTTGAACCTCTGACCTCAGATGATCCA

Figure 3 Continued

TCTGACTTGGCCTCCCAAACCTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGC
TCTAGACCAACACGTTGGGGCCCGAGCTCGCGCGCTGTATCTATAGTGTACCTAAATGGCCGACAAATTCA
CTGGCCGTGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACATCCCC
CTTTGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCTTCCCAACAGTTGCGCAGCCTGAATGGCGA
ATG

2> E-66m39MD
TATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAAGCTCGGTACCACGCATGCTGCGAGACGCG
TTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTITGACAAATCTCAGCTCACCGAAACCTCCGCCCTCACAGG
TTCAAGTGATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAGCATTTGCCATGATACCTGGCTAAATTTGT
ATTTTATAGTAGAGACCAAGGATTTCTCATGTTGATAAGGTGGTCTTGAACCTCTGACCTCAGATGATCCATCTGATT
TGGCCTCCCAAACCTGCTGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTATAGA
CCACAGTGTGGGGCCCGAGCTCGCGCCGCTGTATCTATAGTGTACCTAAATGGCCGACAAATTCACCTGGCC
GTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCTTGACGACACATCCCCCTTTCGCC
AGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAA

2> E-68m39MD
CAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCACGCATGCTGCAGA
CGCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTITGACAAATCTCAGCTCACCGAAACCTCCGCCCTCA
CAGGTTCAAAGTATCTCTGCTCAGCCTTCTGAGTAGCTAGGATGACAAGCATTTGCCATGATACCTGGCTAAT
TTTGTAATTTTAGTAGAGGCCAGGATTTCTCATGTTGATAAGGTGGTCTTGAACCTCTGACCTCAGATGATCCATC
TGATTTGGCCTCCCAAACCTGCTGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTC
TAGACCAACACGTTGGGGCCCGAGCTCGCGCCGCTGTATCTATAGTGTACCTAAATGGCCGACAAATTCACCT
GGCCGTGCTTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACATCCCCCT
TTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCTTCCCAAACAGTTGCGCAGCCTGAATGGCGAAT
GGAAATTGTAGCGTTAATATTTTGTAAATTCGCGTTAAATTTTGTAAATCAACTCATTTTTTTAAACCAA

3> E-71m39MD
AAGATTGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCACGCATGCTGCAGAC
GCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTITGACAAATCTCAGCTCACCTGCAACCTTCACCTCCC
AGGTTCAAAGCGATTCATGCTCAGCCTTCCGAATAGTTGAGATTACAGGCTCGTGCCACCAACCCAGCTAAT
TTTTGTAATTTTAGTAGAGATGGGTTTCACCAATGTTGGCCAGGCTGTGAGCTCTGACCTCAAGTAAATCTGC
CCACCTCAGCCTCCAAAACCTGCTGGGAGTACAGGCAATCTGAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGC
TCTAGACCAACACGTTGGGGCCCGAGCTCGCGCCGATGTATTTCTATAGTGTACCTAAATGGCCGACAAATTC
ACTGGCCGTGTTTTACAACGTCGAGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACATCCC
CCTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGACCTTC

Figure 3 Continued

4> E-72m43BD
TAAACACGTTGACCATGATTACGCCAAGCTCTAATAACGACTCACTATAGGGAAAGCTCGGTACCAACGCATGCTGC
AGACGCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCGGCTCACTGCAACATCCGCC
TCCCAGTAGCTGGACCAACAGGTGTGCACCACTTCCGGGCTAATTTTGATTTTATAGTAGACAGGGTTT
GCCATGTTGGTCAGGCTGGTCTTGAACTCCTGACCTCAGGTGATTGCCCCA CCTCAGCCTCCCAAACTGCTGGAG
TACAGGCAATCTGAAATTCGTGCAAGCTTCTCGAGCTAGGCTAGCTTAGACCACACAGTGTGGGGCCCCGAGC
TCGGGGCCGCTGATTCTATAGTGTCACTAAATGGCCGCACAAATTCACCTGGCCGTGTTTATACAAACGTCGTGACT
GGGAAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACACATCCCCCTTCGCCAGCTGGCGTAATAGCGAAG
AGGCCGACCCGATCGCCCTTCCCAACAGTTGCCAGCCTGAATGGCGAATGGAAATTTGTAAAGCGTTAATA

3> E-74m43BD
AAACAGCTATGACCATGATTACGCCAAGCTCTAATAACGACTCACTATAGGGAAAGCTCGGTACCAACGCATGCTGC
AGACGCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTCAGCTCATTCGGAGCTCCACC
TCCCAGGTTCAAGCAATTTCTCTACCTCAGCAACTCCTGAGTAGCTGAGACTACAGGTGTGCCACTATGCTGG
CTAACTTTTGTGATTTTATAGTAGACAGGGTTTCACCATGTGGCCAGGCTAGTCTCGAACACCTGACCTCAG
ATGATCCACCTGCCTCGCCCTCCCAAACTGCTGGAGTACAGGCAATCTGAAATTCGTGACAAAGCTTCTCGAGCCT
AGGCTAGCTTAGACCAACAGCTGTGGGGCCCCGAGCTCGGGCCGCTGATTCTATAGTGTCACTAAATGGCCG
CACAAATTCACCTGGCCGCTGTTTACAAACCTGCTGACTGGGAAACCTCGCGTTACCCAACTTAATCGCCTTGCAG
CACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGGCGAGCT
GAATGGCGGAATGGAAAT

> E-75m43BD
CAGCTATGACCATGATTACGCCAAGCTCTAATAACGACTCACTATAGGGAAAGCTCGGTACCAACGCATGCTGCAGA
CGCGTTACGTATCGGATCCAGAAATTCGTGATTGGAGGGTGTTCACAAATCTTGGTTCACTACAACTCCAAATCTC
CAGGTTCAAGGATTCCTGCTCAGACTCCTGAGTAGCTGGATTACAGGCAATCCACCAACATGCTGGCTAAAT
TTTTATTTTATGACAGACGGGGTTTGGCCATATTGGCCATGCTGGTCTCAAACTCCTGACCTCATGTGATCCACC
CGCCTTGGCCCTCCCAAACTGCTGGAGTACAGGCAATCTGAAATTCGTGACAAAGCTTCTCGAGCCTAGGCTAGCTC
TAGACCACACGTGTGGGGCCCCGAGCTCGGGCCGCTGATTCTATAGTGTCACTAAATGGCCGACAAATTCAC
GGCCGCTGTTTACAAACGTCGTGACTGGGAAACCTCGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCT
TTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGGCGAGCCTGAATGGCGAA
TGGAAATGTAGCGGTTAATAATTTGTGTTAAATTCGGCTTAAATTTGTGTTAAATCAGCTCAT

> E-77m43BD
CAGCTAACAGCTATGACCTGATTACGCCAAGCTCTAATAACGACTCACTATAGGGAAAGCTCGGTACCAACGCATGC
TGCAGACCGGTTACGTATCGGATCCAGAAATTCGTGATTGCTGTACTCCAGCAGTTTCGGAGGTTGAGGGGGTG

Figure 3 Continued

GATTACCTGAGGTCAGGAGTTTAAGATCAGCCTGGCCAACTGTATGAAACCCCATCTCTACTAAAAATACAAAA
 ATTAGCCTGGTGTGTGGGCACTGTAAATCCAGCTACTCGGGAGGCTGAGGCAGGATAATCAGCTTGAAACCT
 GGGAGGTGGTGGTTCAGTGAGCTGAGATTGTGCAAAACACCTCCAAATCTGAATTCGTCGACAAAGCTTCTCGAGC
 CTAGGCTAGCTCTAGACCAACACGCTGTGGGGCCGAGCTCGCGCCGCTGTATTCTATAGTGTCACCTAAATGGCC
 GCACAAATTCAGTGGCCGCTGTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGCA
 GCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCC

> E-78m43BD

ACAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCACGCATGCTGCAG
 ACGCGTTACGTATCGGATCCAGAATTCGTGATTGGAGGGTGTGTGCACAATCTCGGCTCAATGCAACCTCAGCCTC
 CTGGGTTCAAGCAATTCTCTGTCTCAGCCTCCCGAGTAGCTGGGATTACAGGCACATGCCACCATGCCCAACTAA
 TTTTGTATTTTAGTAGAGACAGGGTTTGGCCATGTTGGCCAGGCTGGTCTCAAACTCCTGACCTCAGGTGGTCCA
 CCGGCTCAGCCTCCCAAACCTGCTGGGAGTACAGGCCAACTCTGAATTCGTCGACAAAGCTTCTCGAGCCTAGGCTA
 GCTCTAGACCACACGCTGTGGGGCCCGAGCTCGCGCCGCTGTATTCTATAGTGTACCTTAAATGGCCGCACAATT
 CACTGGCCGCTGTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACATCC
 CCGTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCTTCCAAACAGTTGGCGCAGCCTGAA

> E-79m43BD

AACAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCACGCATGCTGCA
 GACCGTTACGTATCGGATCCAGAATTCGTGATTGGAGGGTGTGTGCACAATCTCAGCTCACTGCAACCTCCGTTT
 CCCAGGTGCAACCGATTCTCCTGCTCAGACCTCTGAAGCGGCTGGGACTACAGGTGCCTGCCCACCTACCCGGCT
 AATTTTGTATTTTAAAGAGATGGGGTTTCAACACATTGGCCGGGTGCTCAAACCTCCTGACCTCAAAGTGA
 TCCTTCCATCTTGGCCCTCCCAAACCTGCTGGGAGTACAGGCAATCTGAATTCGTCGACAAAGCTTCTCGAGCCTAGGC
 TAGCTCTATACCACACGCTGTGGGGCCCGAGCTCCGGCCGCTGTATTCTATATAGTGTACCTTAAATGGCCGGACA
 ATTCAGTGGCCGCTCGGTTTACAACGTCAGGACTGGGAAACCCCTGGCGTTACCCAACTTAATGCC

> E-83m43BD

CAGCTATGACCATGATTACGCCAAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCACGCATGCTGCAGA
 CGCGTTACGTATCGGATCCAGAATTCGTGATTGGAGGGTGTGTGCACAATCTCGGCTCAATGCAACCTCAGCCTCC
 TGGGTCAAGCAATCTCCTGTCTCAGCCTCCCGAGTAGCTGGGATTACAGGCACATGCCACCATGCCCAACTAAT
 TTTTGTATTTTAGTAGACAGGGTTTGGCCATGTTGGCCAGGCTGGTCTCAAACCTCCTGACCTCAGGTGGTCCA
 CCGGCTCAGCCTCCCAAACCTGCTGGGAGTACAGGCCAATCTGAATTCGTCGACAAAGCTTCTCGAGCCTAGGCTA
 GCTCTAGACCACACGCTGTGGGGCCCGAGCTCGCGCCGCTGTATTCTATAGTGTACCTTAAATGGCCGCACAATT
 CACTGGCCGCTGTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTTGACGACATCC
 CCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCTTCCAAACAGTTGCG

Figure 3 Continued

> E-167m50Ctrl
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCGCTCAGCCCTCTGAGTAGCTAGGATGACAAAG
CAATTTGCCATGATACCTGGCTAAATTTTGTAATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

> E-271m50Ctrl
CAGCTCACCATGACCTCTGCCCTCCTGGGTTCAAGCGATTCTCTGGACTCAGCCCTCCTGAGTAGCTGGAATTACAGG
GATTCGCCACCATGCCAGCTAAATTTTGTAATTTTAGTAGAGACAGGGTTTCTCCAAATTGGTCAGGCTGGTCTCG
AACTCCCGACCTCAGGTGATCCGCCCGCCCTTGGCCCTCCC

> E-272m50Ctrl
CAGCTCACTGCAGCCTCCTCCTCTGAGGTCAAGTGATACTGCTGCGCTCAGCCCTCCTGAGTAGCTGGGATTACAGG
CACCCACCAACCAACCTGGCCAAATTTTGTAATTTTAGTAGAGACAGAGTTTCACCATGTCTGGCCAGGCTGGTCTC
AAACTCCTGCGCTCAGATGTTCCACCCACCTTGGCCCTCCC

> E-273m50Ctrl
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCGCTCAGCCCTCTGAGTAGCTAGGATGACAAAG
CAATTTGCCATGATACCTGGCTAAATTTTGTAATTTTAGTAGAGACCAGGATTCTTATGTTGATAAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

> E-275m50Ctrl
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCGCTCAGCCCTCTGAGTAGCTAGGATGACAAAG
CAATTTGCCATGATACCTGGCTAAATTTTGTAATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

> E-279m50Ctrl
CAGCTCACTGCAGCCTCCTCCTCTGAGGTCAAGTGATTCTGCTGCGCTCAGCCCTCCTGAGTAGCTGGGATTACAGG
CACCCACCAACCAACCTGGCCAAATTTTGTAATTTTAGTAGAGACAGAGTTTCACCATGTCTGGCCAGGCTGGTCTC
AAACTCCTGCCCTCAGATGTTCCACCCACCTTGGCCCTCCC

> E-281m50Ctrl
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCGCTCAGCCCTCTGAGTAGCTAGGATGACAAAG
CAATTTGCCATGATACCTGGCTAAATTTTGTAATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

> E-283m56SZ

Figure 3 Continued

TGGCTCACTGTAACTCTGCCCTCTGGGTTCAAGTAATTCCTCTGTCTCAGCCTCCTGAGTAGCTAGGATTACTGGT
GCCCGCCACCATGCCCGGCAAAATTTTGTATTTTAGTAGAGATGGGGTTTCACTATGTTGCCAGGGTGGTCTCA
AACTCCTGACCTCAAGTGATCCACCTGCTTCAGCCTCCC

> E-284m56SZ
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
CAITTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCGGATTCTTCATGTTGATAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

> E-61m34BD
CGGTTCACTGCAACTCTGCCCTCCCAGGTTCAAGCAATTATCTGCCCTCAGCCTCCCAGTAGCTGGGATTACAGGT
GCCCGCCACCACTCACTCAATTTTCGTATTTTAGTAGAGACCGGTTTCAACCATCTTGGCTAGGCTGGTCTTGA
CTCCTGACTGCGTGATCCACCCGCCCTTGGCCCCC

>> E-62m34BD
TGGCTCACTGTAACTCTGCCCTCTGGGTTCAAGTAATTCCTCTGTCTCAGCCTCCTGAGTAGCTAGGATTACTGGT
GCCCGCCACCATGCCCGGCAAAATTTTGTATTTTAGTAGAGATGGGGTTTCACTATGTTGCCAGGGTGGTCTCA
AACTCCTGACCTCAAGTGATCCACCTGCTTCAGCCTCCC

>> E-63m34BD
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
CAITTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCGGATTCTTCATGTTGATAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGACTTGGCCCTCCC

>> E-66m39MD
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
CAITTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCGGATTCTTCATGTTGATAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

>> E-68m39MD
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
CAITTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGGCGGAGGATTCTTCATGTTGATAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

Figure 3 Continued

3> E-71m39MD
CAGCTCACTGCAACCTTCACCTCCAGGTTCAAGCGATTCTCATGCTCAGCCTTCCGAATAGTTGAGATTACAGG
CTCGTGCCACCAACCCAGCTAAATTTTGTATTTTAGTAGAGATGGGGTTTACCATGTTGGCCAGGCTGGTCTT
GAGCTCCTGACCTCAAGTAATCTGCCCACTCAGCCTCCA

4> E-72m43BD
CGGCTCACTGCAACATCCGGCTCCCGAGTAGCTGGGACCACAGGTGTGACCAACCTTCCGGGCTAAATTTTGTAT
TTTTAGTAGAGACAGGGTTTGGCATGTTGGTCAGGCTGGTCTGAACCTCCTGACCTCAGGTGATTTGCCCAACCTC
AGCCTCCC

3> E-74m43BD
CAGCTCAATTGCGAGCTCCACCTCCAGGTTCAAGCAATTCTCTACCTCAGCAACTCCTGAGTAGCTGAGACTACA
GGTGTGTCCTACTATGCTGGCTAACTTTTGTATTTTAGTAGAGACAGGGTTTACCATGTTGGCCAGGCTAG
TCTCGAACACCTGACCTCAGATGATCCACCTGCCTCGGCCCTCCC

2> E-75m43BD
TGTTCACTACAACCTCCAATCTCCAGGTTCAAGGATTCTCCTGCCTCAGACTCCTGAGTAGCTGGGATTACAGGC
ATCCACCAACATGCTGGCTAAATTTTATTTTAGCAGAGACGGGTTTGGCCATATTGGCCATGCTGGTCTCAA
ACTCCTGACCTCATGTGATCCACCGGCTTGGCCTCCC

3> E-78m43BD
CGGCTCAATGCAACCTCAGCCTCCTGGGTTCAAGCAATTCTCTGCTCAGCCTCCCGAGTAGCTGGGATTACAGG
CACATGCCACCATGCCCAACTAAATTTTGTATTTTAGTAGAGACAGGGTTTGGCCATGTTGGCCAGGCTGGTCTC
AACTCCTGACCTCAGGTGGTCCACCGGCTCAGCCTCCC

5> E-79m43BD
CAGCTCACTGCAACCTCCGTTTCCAGGTGCAACCGATTCTCCTGCCTCAGACCTCTGAAGCGGCTGGGACTACAG
GTGCTGCCACCTCACCCTGGCTAAATTTGTATTTTAGTAAGAGATGGGTTTCAACCAATTGGCCGGGTGGTC
TCAAACTCCTGACCTCAAGTGATCCTTCCATCTTGGCCTCCC

3> E-83m43BD
CGGCTCAATGCAACCTCAGCCTCCTGGGTTCAAGCAATTCTCTGCTCAGCCTCCCGAGTAGCTGGGATTACAGG
CACATGCCACCATGCCCAACTAAATTTGTATTTTAGTAGAGACAGGGTTTGGCCATGTTGGCCAGGCTGGTCTC
AAACTCCTGACCTCAGGTGGTCCACCGGCTCAGCCTCCC

Figure 3 Continued

[]10> E-120m57Ctrl
 AATAGCTATGCCCATGATTACGCCAAGCTCTAATACGACTACTATAGGGTATGCTCGGAGCTAGGCATGCTGCA
 GACGGTTACGCAATTACGATCCAGAATCCAGAGATTGGAGTGGCTGGCGTAATATCGGTTAGTGGACCTGTG
 CCTCCGGGTTCCAGGTGTGCTAGTGTGTAACCTCCTGAGCATCATTTGGATAACAGTAGCCTCTCACCATGCTCA
 TCTTGTCTTGTTATGTTGGCAGCGGTCCACCATGCCGTTATGCTGAACCTCGGACTCATCACTTAAATTAAACCA
 CCTGCCTCAGACTCCGAAACTGCTGGTAGTACAGGCAATCTGCAATCGTCTGCATTTCTTACAGCCTAGGCTAGC
 TATAGACCACACTTGACCACGGCCGAGCTCCCGCGCTTGGATTCTATAGTGTCATATAAAGGCCCGAACAAATT
 CACTGCACCCGTAGTTT

[]> RevE-120m57Ctrl
 AAACCTACGGTGCAGTGAAATTGTTCCGGCCTTTATATGACACTATAGAATCCAAAGCGCCGGGAGCTCGGGCCGTG
 GTCAAGTGTGGTCTATAGCTAGCCTAGGCTGTAGAAGAATGCAGACGAATGCAGATTGCTGTACTACCAGCAGT
 TTCGGAGTCTGAGGCAGGTGGTTAATTTAAGGTGATGAGTCCGAGTTCAGCATAAACCGGCATGGTGGACCGCTGC
 CACCAATACAAGCACAAAGATGAGCATGGTGAGAGGCTACTGTTATCCAAATGATGCTCAGGAGGTTCAAACACTAG
 CAACACCTGGAACCCGGAGGCACAGGTCCCACTAAACCGATATTACGCCAGCCACCTCCCAATCTCTGGATTCTGG
 ATCGTAATGCGTAACGCGTCTGCAGCATGCCTAGCTCCGAGCATACCCCTATAGTGAGTCTGTAATTAGAGCTTGGCGT
 AATCATGGGCATAGCTATT
 Sorry, no matches found

S> RevE-119m57Ctrl

CAGCTGACTGCAACCTCTGACTCCTGGGTTCAAGTGACTCTCCTGCCCTCAGCCTTCTGAATAGCTGGGATTACGGG
 CAAGTACCACCATACCTAGCTAAATTTGTATTTTGTAGCAGAGACGGGTTTCTCCATGTTGGTCAGGCGGTTCTCG
 AACTCCCGACCTCAGGTGATCCACCTGCCCTCTGCCTCCC

2> RevE-270m50Ctrl

CAGCTCAACCGAAACCTCCGGCTCACAGGTTCAAGTGATTCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
 CATTTGCCATGATACCTGGCTAAATTTGTATTTTGTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGTTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

S> RevE-169m50Ctrl

CAGCTCTCCACAACCTCCGCCATCGTGGGTTCCAGCAGATTCTCTGCCCTCGGCCTCCCAAGTAGCTGGGAATACA
 GGCAGCTCCCAATACACCTGGCTAATTATGTATTTTGTAGTAGAGACAGGTTTCTCCATGTTGGTCAACCTGGTCT
 GGAACTCCTGACCTCGGGGTAATCAACCCACTTCAGCCTCCC

Figure 3 Continued


```

3> RevE-77m43BD
CAGCTCACTGCAACCAACCACTCCAGGTTCAAGTATTATCCTGCCCTCAGCCTCCCGAGTAGCTGGGATTACAGA
TGCCCAACCAACACACAGGCTAATTTTGTATTTTAGTAGAGATGGGTTTCATCAGGTGGCCAGGCTGATCT
TAAACTCCTGACCTCAGGTAATCCACCCGCCCTCAACCTCCG

2> PK1601mM-13_m37-7+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTTGCCATGATACCTGGCTAATTTGTATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

2> PK1601mM-11_m37-5+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTTGCCATGATACCTGGCTAATTTGTATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTTCC

[5> PK1601_mM-1_m57-6-----
CAGCTCACTGCAAGGCTCCGCCCTCCGGGTTCAAGGTTCAAGTGATTCTCTGCCCTCAGCCTCCCGAGTAGCTGGGACTACAGG
CGCCCAACCAACCATGCCAGCTAATTTTGTATTTTAGCAGAGACGGGGTTTACCAATGTTGGCCAGGATGGTCTC
CAAACTCCTGACCTCCTGAGACACCTGTGTCGGGTCCCAAACTGTGGAGTACAGGCAACTCTGAATTTTGGAC
AAGACTCTTCGAGCCTATGCTACTATCTACACCACACCGCGTGGGGCCCCAGCTCGGGCCGCTGTATTATATAA
TA

3> PK1601mM-60+++
CAGCTCAATGCAACCTACACCTCCTGGGTTCAAGTGATTCTCACGCCCTCAGCCTCCTAAGTAACTGGGATTACAGG
GGCGCACCAACCAACCTGGCTAATTTTGTATTTTAGCAGAGATGGGCCATGTTGGCCAGGCTGGTCTTGAACCT
CCTGACCTCAAGTGATCCACCTGCCTCGGCCCTCCC

2> PK1601mM-59+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTTGCCATGATACCTGGCTAATTTGTATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

2> PK1601mM-58+++

```

Figure 3 Continued

CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTGGCCATGATACCTGGCTAATTTGTATTTTAGTAGAGACCAGGATTCTTCAITGTGATAAGGTGGTTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTGGCCTCCC

3[]> PK1601mM-57+++
ATCTATGACATGATTGCCCGGATTCTCAAAGCTCTAATTCTACTGAATGTTGCGGAACGCTCCATCCACGCATGCCG
TAAACGCTTTACTCCTCGGTTCCAGAAATGCGGG
ATTGCCGTACTTCCATCAGTTAGGGAGGCCAAATCCTACGGATCATATGAGGCTATGAGACCAAGACCCACCTT
ATCAACATGAAGAAATCCTGGTCTCTACTAAAAATACAATATTAGCCAGGTTTCAATGGTATATGCTTGTAAATCCTAG
CTACTCACAAAGGCTGAGGCAGAGGAATTACTTGAACCTGTGAGGGGAGGTTTCGGTGAGCTGAGATTGTCCAAA
CACCTCCAAATCTGAATTCGTTGACAAAGCTTTTCGAGCCTAGGCTAGCTTAGACCAACGTCGTGGGGCCCGGAGC
TCGCGGT

> PK1601mM-55+++
ACGTTGCCCTGTTGCGAGTTATCGCTACTTGGGAAGTCGTCCCATCTGAGCCGTCGATCCAGAAATCGG
ATTGGAGGTGTTGCCAACATTGAGTCACCTGCAGCTTGAACCTCTGAGTGCAATGGCTTATTCCACCTCAACCTC
CTGAGGAGTTGGGACCACCAAGTTTCAACACCACATCAGGCTAATTAATTTTGTAGAAATGAAGACTTACTAT
TATGTCCAGGCTAGTATTAAAAATACTGGGGTTAAGCAAGACTCCCCCTTGTTGTCCCAAATGTCTGGGGGACAA
CAGGTATTGATTTTTCGACAAGCTTCTTCGAGCCTCCGATGGTTCTATACACCACACGTTGGGGCCCGAGCTCTCGC
CGCTG

2> Pk1601mM-54+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTGGCCATGATACCTGGCTAATTTGTATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTGGCCTCCC

2> pk1601mM-53+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTGGCCATGATACCTGGCTAATTTGTATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTGGCCTCCC

5> pk1601mM-52+++
CAGCTCACTGCAACCTCCGCCCTCCTGGATTCAAGCGATTTTCCGCCCTTAGCCTCCTGAGTAACTGGGACTAGAGG
CAGGTACCAACCAAGCCAGCTAATTTTGTATTTTAGTAGAGACGAGGTTTCACCATGTGGGGCCAGGCTGGTCTT
AAACTCCTGACCTCAAGTGATTGGCCCAACTCAGCCTCCC

Figure 3 Continued

5> pk1601mM-51+++
CAGCTCACTGCAACCTCCGGCCTCCTGGATTCAAGCGATTTCCCGCCTTAGCCCTCCTGAGTAACTGGGACTAGAGG
CAGGTACCAACCGCCAGCTAAATTTTGTATTTTGTAGTAGAGAGGAGGTTTCCACCATGTGGGCCAGGCTGGTCTT
AAACTCCTGACCTCAAGTGATTTGCCCAACTCAGCCTCCC

2> pk1601mM-50-----
CAGCTCAACCGAAACCTCCGGCCTCACAGGTTCAAGTGATTCCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
CAATTTGCCATGATACCTGGCTAATTTTGTATTTTGTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

8> pk1601mM-49-----
GACTCATTTGCAACCTCTGCCCTCCTGGGTTTAAAGCCGTTCTCATGCCCTCAGCCTCCCGACGTAGCTGGGATTTATAGG
CATGGGCCACCAACCCCAAGCTAAATTTTGTATTTATCATGAGATGGGGCTTCGCCATGCTGGCCAGGCTGGTCTT
GAACTCCTGACCTCAAGCAATCCGCCCAACTCGGCCCTCCC

pk1601mM-47-----
CAGCTCAACCGAAACCTCCGGCCTCACAGGTTCAAGTGATTCCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
CAATTTGCCATGATACCTGGCTAATTTTGTATTTTGTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

2> pk1601mM-48-----
CAGCTCAACCGAAACCTCCGGCCTCACAGGTTCAAGTGATTCCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
CAATTTGCCATGATACCTGGCTAATTTTGTATTTTGTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

2> pk1601mM-44-----
CAGCTCAACCGAAACCTCCGGCCTCACAGGTTCAAGTGATTCCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
CAATTTGCCATGATACCTGGCTAATTTTGTATTTTGTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCCTTGA
CTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

2> pk1601mM-42-----
CAGCTCAACCGAAACCTCCGGCCTCACAGGTTCAAGTGATTCCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
CAATTTGCCATGATACCTGGCTAATTTTGTATTTTGTAGTAGAGACCAGGATTCTTCATGTTGATAAGGTGGTTCCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

[]10> pk1601mM-37+++

Figure 3 Continued

GACAGGTATGACCATGATTACGCCAGCTCTAATACGACTCACTATAGGAAAGCTCGGTACCAACGCATGCTGCAG
 ACGGTTACGTATGGATCCAGAATTCGTGATGGAGGGTGTITTCACAATCTCAGCTCACCGCAACCTTTGCGCT
 CACGGGCTCAAGTGAATTCATGCTTGATCTCAACAAAGTAGCTGGGATTACAGGCACATGCCATCATGCTGAGCTA
 ACTTTGGTATTTTGGTAGAGACGAGGTTTCACCAATGTTGGCCAGGCTGTCTCAAACTCCTGACCTCAGATGATCC
 GTCCACCTCAGCCTCCC

9> pk1601_mM-35+++
 CGGCTCACTGCAAGCTCTGCCCTCCCGGGTTTCATGCCATTTCTCTGCCCTCAGCCTCCCGAGTAGCTGGGACTGCAGG
 TGGCCGTCAACACGCCCGGCTAATTTTGTATTTTAGTAGAGACAGGGTTTCACCATGTTAGCCAGGATGGTCT
 CGATCTCCTGACCTCGTGATCTGCCCGCCTCAGCCTCCC

5> pk1601_mM-32+++
 CACGTCACCTGTAATGTCCATCTCCCGGGTTTCAGGTGATTTCTCTGCCCCAGCCTCCTGAGTAGCTGTACAGGCGTG
 CACCACCATGCCCGACTAATTTTGTACTTTTAGTAGAGATTGGGTTTCACCGTGTGGTCAGGCTGGTCTTGAACCT
 CCTGACCTCAAGTGAATCTGCCCTGCCCTCAGCCTCCC

4> pk1601_mM-31+++
 CAGCTTACTGCAACCTTTGCTTCCAGTTTCAAGTGATTTCTCTGTCTCATGTCTCAGAGAACCCGGTACTACAGG
 CACACGCCACCATGCTCGGGCTAATAATTATGTCTTAGAATAGAGATTGGTTTTCACCGATT

6> pk1601_mM-30+++
 TGGCTCACTGCAACCTCTGCCACCCGGATTAAAGCAATTTCTCTGCCCTCAGCCTCCCGAGTAGCTGGGATTACAGG
 CGCCTGCCACTGCTCTGAGCTAATTTTGTATTTTGGTAGAGACGGGATTTACCATCTTGGCCAGGCTGGTTTAA
 AACTCCTGACCTCATGATCCACCCGCCCTCGGCCTTC

7> pk1401_mM-24+++
 TGGCTTACTGGAACCTTCGCCCTCCGGGTTCAAGAGATTCTTCTGCCCTAACCTTCCGAGAGGCTGGGACTACAGG
 CATGCGCCACCATGCCAGCTAGGTTTGGATTTTAAAGAGAGATGGGGTTTCCCATGTTGGCCAGGATGATCTC
 GATCTCTGACCTCGTGAATCTGTCGGCTTAAAGACTTCCAAACTGGTGGGAGTACAGGC
 AATCTGAATTCGTGACAAAGCTTTTCTAGCCTAGGCTAGCTCTAGACACACGTTGTGGGGGCCCGAGCTCGCGGCC
 GCTGTA

4> pk1401_mM-23+++
 CGGTTCAATTGCAACCTCCGCTTCTAGGGTCCAGTGATCTCTGCCCTCAGTCCCCCAAGTGGTGGGACTACAGG
 CATGTGCCACCATCTGGCTAACCTTTTGTATATTAGTAGAAACAGGGTTTCACCATGTTGGCCAGGCTGGTCTC
 GAACCTCCTGGCCTCAAGTGAATCCACCCGCCCTTGGCCTCCC

Figure 3 Continued

2> pk1401_mM-22+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAAGTGAATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTGGCCATGATACCTGGCTAAATTTTGTATTTTGTAGTAGAGACCAGGATTCCTCATGTTGATAAGGTGGTTCCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

7> pk1401_mM-21+++
TGGCTCACTGCAACCTCTGCCCTCTGGGTTCAAAGTAATTCTCTGCCCTCAGCCTCCCGAGTACCTGGGACTACAGG
CACCCACCAACACGCTCAGCTAAATTTTGTATTTTGTAGTAGAGACGGGTTTCACCATATTGGCCAGGCTGGTCTC
GAACTCCTGACCTTGTGATCCCGCCCTCGGCCGCC

2> pk1401_mM-20+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAAGTGAATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTGGCCATGATACCTGGCTAAATTTTGTATTTTGTAGTAGAGACCGGATTCCTCATGTTGATAAGGTGGTTCCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

2> pk1401_mM-19+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAAGTGAATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTGGCCATGATACCTGGCTAAATTTTGTATTTTGTAGTAGAGACCGGATTCCTCATGTTGATAAGGTGGTTCCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

2> pk1401_mM-18+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAAGTGAATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTGGCCATGATACCTGGCTAAATTTTGTATTTTGTAGTAGAGACCGGATTCCTCATGTTGATAAGGTGGTTCCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

2> pk1401_mM-17+++
CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAAGTGAATTCCTCTGCCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTGGCCATGATACCTGGCTAAATTTTGTATTTTGTAGTAGAGACCGGATTCCTCATGTTGATAAGGTGGTTCCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

4> pk1401_mM-16+++
GGGAGGCCAAATCAGATGGATCATCTGAGGTGAGGTTCAAGAACCACTTATCAACATGAAGAATCCTGGTCT
CTACTAAACTACAAATTAGCCAGGTATCATGGCAATGCTTGTATCCTAGCTACTCAGAAAGGCTGAGGCAGA
GGAATCACTTGAACCTGTGAGGGGAGGTTTCGGTGAGCTG

Figure 3 Continued

CAGCTCACTGCAACCTCCCTCCTGGGTTCAAGCGATTCTCTTGCCTCAGCCTCCTGAGTAGCTGGGATTACAGG
TGCCCCACCAACGCCCCAGTTAATTTTGTAGTTTGTAGTACAGACGAGGTTCACACTGTGCTGATCAGGCTAGTCT
CGAACTCTGACCTCAGGTGATCCACCTGGCTTGGCATCTC

2> pk1401_mM-14+++

CAGCTCACCCGAAACCTCCGCCCTCACAGGTTCAAGTGAATCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTTGCCATGATACCTGGCTAATTTTGTATTTTGTATTTTGTAGAGACCAGGATTCCTCATGTTGATAAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCTCCC

4> pk1401_mM-10-----

CAGCTGACTGCAGTCTTGACCTCGAAGGCTCAAGCGATCCTCCACCTCTCAGCCTCACAAGTAGCTGGGACTACT
ACTGACACGCCCTCACACACCCAGCATTTTCTTTTGGTAGAAACAGGGTTTCATTATGTTGCCACGGGTGGTCT
CAAACTCCTGAGCTCAAAGTGATCCTCCCCACTCGGCTCCC

2> pk1401_mM-8-----

CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGAATCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTTGCCATGATACCTGGCTAATTTGTATTTTGTATTTTGTAGAGACCAGGATTCCTCATGTTGATAAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCTCCC

pk1401_mM-7-----

CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGAATCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAG
CATTTGTCAATACCTGGCTAATTTGTATTTTGTATTTTGTAGAGACCAGGATTCCTCATGTTGATAAAGGTGGTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCTCCC

pk1401_mM-6-----

CAGCTCACCAACAACCTCCGCCCTCCTGGGTTCCAGCGATTCTCCTGCCTCGGCCCTCCCAAGTAGCTGGGATTACAGG
CACGCAACCAATACACCTGGCTAATTTGTATTTTGTATTTTGTAGCAGAGACAGGGTTTCTCCATGTTGGTCAACCTGGTCTGT
AACTCCTGACCTCGGGTAATCAACCCACTTCAGCCTCCC

pk1401_mM-5-----

CAGCTCACTGCAACCTCCATTTCTGGGTTCAAGCGATTCTCCTGCCTCAGCCTCCGGAGTAGCTGGGACCAACA
CGTGTGCCACCATGCCCTGGGTAATTTTCATATTTTCAGTAGAGGTGGGCTTTGCCACATTTGCCAGGCTGGTCTT
GAACTCCTGACCTCAGGTGATCCGCCCGCCTCAGCCTCCC

PK1401_mM-4-----

Figure 3 Continued

GGCTCACTGCAGCCTCTACCTCCCATGTTCAAGCCATCCTCCAGTCTCAGCCTCTGGAGTAGTTGGGATTACAGAT
GTGTACCACCTCGCTGGCTAATTTTGTATTTTAGTAGAGATGGGTTTGGCCATGTTGGCCAGGCTGATCTCAG
ATTCTGATCTCAGGTGATCCACCTGCCTTGGCCCTCCC

SZb m37-7+++
CGGCTCACTGCAGCCTCTACCTCCCATGTTCAAGCCATCCTCCAGTCTCAGCCTCTGGAGTAGTTGGGATTACAGA
TGTTACCAACCTCGCTGGCTAATTTTGTATTTTAGTAGAGATGGGTTTGGCCATGTTGGCCAGGCTGATCTCA
GATTCCTGATCTCAGGTGATCCACCTGCCTTGGCCCTCCC

SZb m37-5+++
CAGCTACCCGAAACCTCCGCCCTCACAGGTTCAAGTATTCTCTGCCCTCAGCCCTCTGAGTAGCTAGGATGACAAAG
CAATTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCAAGGATTCTTCATGTTGATAAAGGTGTTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

SZb m37-3+++
CAGCTATGACCTGATTACGCCAAGCTCTAATACGACTCACTATAGGGAAAGCTCGGTACCAACGCATGCTGCAGAC
GCGTTACGTATCGGATCCAGAAATTCGTGATT
GCCGGAACTTCGAAACCGTCTGGCTGCCCTGAAAGCTTGGACTACCAAGGGTAAAGCGGTTACAGGGCCCTCATTTATC
AACAGGAACCTGTGATGACATGTACTAACACACTGCCAGGTCGGGTTGATGGCAAATGCAGGACATACAAAAT
ACTAATATGGCTGCAGGGCTGGAATCAATCGAAACGTGGGAGGATCCGTCCTGAGCCGACAAAGCTGATGCA
AGTTCCAACATGAATTCGTCGACAAAGCTTCTCGAGCCTAGGCTAGCTCTAGACCACACCGTGTGGGGGCC

BDc m34-10-----BD-----
CAGCTACCCGAAACCTCCGCCCTCACAGGTTCAAGTATTCTCTGCCCTCAGCCCTCTGAGTAGCTAGGATGACAAAG
CAATTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAAGGTGTTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

SZb m37-2+++
CAGCTACCCGAAACCTCCGCCCTCACAGGTTCAAGTATTCTCTGCCCTCAGCCCTCTGAGTAGCTAGGATGACAAAG
CAATTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCAGGATTCTTCATGTTGATAAAGGTGTTCTTGA
ACTCCTGACCTCAGATGATCCATCTGATTTGGCCCTCCC

BDc m34-3-----BD-----
TGGCTCACTGTAAACCTCCACCTCCTGGATTCAAGTATTCTCTGCCCTCAGCCCTCCCACGTAAGCTGGGACTACAGG
CACACGACACCCGACCCAGCTCAATTTTGTATTTTAGTAGAGACAGGGTTTCACTATGTTGGCCAGGCTGGTCTCA
AACTTCTGACCTCAGGTGATCCACCCACCTCAGCCCTCC

Figure 3 Continued

Bdd_m43-14-----BD-----
 CTCTGCTCACTGACGCTTCTGCCTCCCGGTTCAAGTGAATTCCTCCTGCCTCAGCCTCTCTGAGTAGCTGGACTACA
 GGCATGCCACCAACACACCCAGCTAATTTTGTATTTTAGTAGAGACGGGGTTTCACCATGTTGGCCAGGATGGTC
 TCTATCTCTTGACCTCATGATCCGCCCGCCTCAGCCTTCC

SZc_m37-15+++
 CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
 CATTTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCAAGGATTCTTCATGTTTGATAAAGGTGTTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

SZc_m37-10+++
 CAGCTCACTGCAGGCTCCGCCCTCCCGGTTACGCCATTCTCCTGCCTCAGCCTCCGCCAGTAGCTGGGACTACAGG
 CGCCACCAACCATGCCAGCTAATTTTGTATTTTAGCAAAGACAGGGTTTCACCATGTTAGCCAGGATGGTCTC
 GATCTCCTGACCTCAGATGATCCACCTGCCTCGGCCCTCCC

SZc_m37-7+++
 CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
 CATTTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCAAGGATTCTTCATGTTGATAAAGGTGTTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

SZc_m37-5+++
 CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
 CATTTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCAAGGATTCTTCATGTTGATAAAGGTGTTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

SZc_m37-3+++
 CAGCTCACTGCAGGCTCCGCCCTCCCGGTTACGCCATTTCCTGCCTCAGCCTCCCCAGTAGCTGGGACTACAGG
 CGCCCATCACCATGCCAGCTAATTTTGTATTTTAGCAAAGACAGGGTTTCACCATGTTAGCCAGGATGGTCTC
 GATCTCCTGACCTCCTGATCCACCTGCCTCGGCCCTCCC

pk0301_M39-14-----BD-----
 AAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCCTCTGCCTCAGCCTTCTGAGTAGCTAGGATGACAAAG
 CATTTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGACCAAGGATTCTTCATGTTTGATAAAGGTGTTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTTGGCCTCCC

PK0301_M37-14+++

Figure 3 Continued

CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCGCTCAGCCCTTCTGAGTAGCTAGGATGACAAAG
 CATTGGCCATGATACCTGGCTAATTTTGATTTTATAGTAGAGACCGAGGATTCTTCATGTTGATAAGGTGGTTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTGGCCCTCCC

PK0301_M37-11+++

CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCGCTCAGCCCTTCTGAGTAGCTAGGATGACAAAG
 CATTGGCCATGATACCTGGCTAATTTTGATTTTATAGTAGAGACCGAGGATTCTTCATGTTGATAAGCGGTTCCTTGA
 ACTCCTGACCTCAGATGATCCATTTGATTGGCCCTCC

RevCompSZB_M37-6+++

CAGCTCACTGGCAGTCTCAATCTTCCAAAGTTCAAGTGATTATCCCATCTCAGCCCTCCCGAGTAGCTGAAACTACA
 GGTGCATACCTACCAACCGCTAGCTAATTTTGTAGAGATGGGGTTTGGCCATGTTGCCAGGCTGCTCTCGA
 ACTTCTGGGCACAAAGTGGTCCACCCACCCTTGGCCCTCCC

RevCompPK1401_mM-17+++

CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCGCTCAGCCCTTCTGAGTAGCTAGGATGACAAAG
 CATTGGCCATGATACCTGGCTAATTTTGATTTTATAGTAGAGACCGAGGATTCTTCATGTTGATAAGGTGGTTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTGGCCCTCCC

RevCompPK1601mM-33+++

CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCGCTCAGCCCTTCTGAGTAGCTAGGATGACAAAG
 CATTGGCCATGATACCTGGCTAATTTTGATTTTATAGTAGAGACCGAGGATTCTTCATGTTGATAAGGTGGTTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTGGCCCTCCC

RevCompPK1601mM-39+++

CAGCTCACCGAAACCTCCGCCCTCACAGGTTCAAGTGATTCTCTGCGCTCAGCCCTTCTGAGTAGCTAGGATGACAAAG
 CATTGGCCATGATACCTGGCTAATTTTGATTTTATAGTAGAGACCGAGGATTCTTCATGTTGATAAGGTGGTTCTTGA
 ACTCCTGACCTCAGATGATCCATCTGATTGGCCCTCCC

CUTPK1601_mM-1_m57-6-----

GAACCAACCATACGCCAACTCTAATACGACTCACTATAGGAAAGCTCGGTACCAACGCATGCTGCAGACGCGTTA
 CGTATCGGATCCAGAAATTCGGGATGGAGGGTGTTCACAATCTCAGCTCACTGCAGGCTCCGCCCTCCCGGGTTC
 ACGCCATTCTCTGCCTCAGCCTCCCGAGTAGCTGGGACTACAGGCGCCACCAACCATGCCAGCTAATTTTGTGA

Figure 3 Continued

TTTTAGCAGAGACGGGGTTTACCAATGTTGGCCAGGATGGTCTCCAAACTCCTGACCTCCTGAGACACCTGTGTCTC
GGGGTCCCAAACTGTGGAGTACAGGCAACTCTGAATTTTGGACAAGACTCTTCGAGCCTATGTCTACTATCTACACA
CCACACGGCGTGGGGGCCCCAGCTCGGGCCGCTGTATTATAATAATA

CUTPK1601mM-57+++
CATCTATGACATGATTGCCCGGATTCTCCAAGCTCTAATTCTACTGAATGTTCCGGAACGCTCCATCCACGCATGCC
GTAAAGCCTTACTCTCGGTTCCAGAAATGGGGATTGCGTGTACTTCCATCAGTTAGGAGGCCAAATCCTACCG
ATCATATGAGGCTATGAGACCAAGACCCACCTTATCAACATGAAGATCCTGGTCTCTACTAAAAATACAATATT
AGCCAGGTTTCATGGTATATGCTTGTAAATCCTAGCTACTCACAAGGCTGAGGCAGAGGAATTACTTGAACCTGTGA
GGCGGAGGTTTCGGTGAGCTGAGATTGTCCAACAACCCCTCCAATCTGAATTCGTTGACAAGCTTTTCGAGCCCTAGG
CTAGCTCTAGACCACACACGTGTGGGGGCCCGAGCTCGCGGT

CUTPK1601mM-55+++
ACGTTGCCCTGTCCAGTTATCGCTACTTGGGAAGTCGTCCCATCTGAGCCGTCGATCGATCCAGAAATCGGATTGG
AGGTGTGGCCAAACATTGAGTCACTGCAGCTTGGACCTCCTGAGTGCATGTGGCTTATCCACCTCAACCTCCTGAG
GAGTTGGGACCCAGTGTTCACACCAATCAGGCTAATTTAATATTTGTAGAAATGAAGACTTACTATATTATGT
CCAGCTAGTATTAAATACTGGGGTTAAGCAAGACTCCCCCTTGTGTCCCAAATGCTGGGGGACCAACAGG
TATTGATTTTTCGACAAAGCTTCTTCGAGCCCTCCGATGGTTCTATACCCACACGTGGGGCCCGAGCTCTCGCCGCT
G

uPK1601mM-39+++
GGGAGGCCAAATCAGATGGATCATCTGAGGTCAGGAGTTCAAGAACCCCTTATCAACATGAAGAAATCCTGGTCT
CTACTAAATAACAAAATTAGCCAGGTATCATGGCAAATGCTGTCTACTCTAGTACTCAGAAAGGCTGAGGCAGA
GGAATCATTGAACCTGTGAGGGCGGAGGTTTCGGTGAGCTGA

CutPK1601mM-37+++
GGGAGGGTGTGTCACAAATCTCAGCTCACCGCAACCTTTGGCCTCACGGGCTCAAGTGAATTCATGCTTGATCCT
ACCAAGTAGCTGGGATTACAGGCACATGCCATCATGCTGAGCTAACTTTGGTATTTTGGTAGAGACGAGGTTTCA
CCATGTTGGCCAGGCTGTCTCAAACTCCTGACCTCAGATGATCCGTCCACCTCAGCCTC

CutPK1601mM-33+++
TGGGAGGCCAAATCAGATGGATCATCTGAGGTCAGGAGTTCAAGAACCCCTTATCAACATGAAGAAATCCTGGTC
TCTACTAAATAACAAAATTAGCCAGGTATCATGGCAAATGCTGTCTACTCTAGTACTCAGAAAGGCTGAGGCAG
AGGAATCACTTGAACCTGTGAGGGCGGAGGTTTCGGTGAGCTGA

CutPK1601 mM-31+++

Figure 3 Continued

TCAGCTTACTGCAACCTTTGCTTCCAGTTTCAAAGTGATTCTCCTGTCTCATGTCTCCAGAGAACCCGGTACTACAGG
CACACGCCACCATGCTCGGCTAATAATTTATGTTCTTAGAATAGAGATTGGTTTTTCCACCGATTI

CutPK1401_mM-17+++
TGGGAGGCCAAATCAGATGGATCATCTGAGGTCAGGAGTTCAAGAACCCTTATCAACATGAAGAATCCTGGTC
TCTACTAAAACTACAAAATTAGCCAGGTATCATGGCAAATGCTTGTCTATCCTAGCTACTCAGAGAGGCTGAGGCAG
AGGAATCACTTGAACCTGTGAGGGGAGGTTTCGGTGAGCTGA

CutPK1401_mM-2_1+++
TCAGCTCACTGCAACCTCACTCCCGGGTTCAAGTGATTCTCCTGCCTCAGCCTCCCAAGTAGCTGCGGATTACAGG
CATCCGCCACCAACCCAACTAATTTGTATTTTAGTAGAGACAGGTTTTCCTCATGTTGGTCAGGCTAGTCTCGA
ATTCTGACCTCAGGTGATCTGCCTGCCTTGGCTTCCCAAAGTGCTGGGATTACAGGCGTGAGCCACT

CutPK1401_mM-2_2+++
GAGACGGAGTCTCGCTGTGCCCCAGGCTGGAGTACAATGGCATGATCTCGGGCTCACTGCAACCTCTGCCCTCCCA
GGTTCAAGGATTTCTCGCTCAGCCTCCCGAGTAGTGGGATTACAGGCCACCCACCCGTCGCCAGCTAATT
TTTGTATCTTTAATAGAGATGGGGTTTCAACATCTTGGCCAGGCTGGTCTTGAACCTCTGACCTCATGATCCACCCA
CCTCAGTCTC

CutSZB_M37-6+++
TGGGAGGCCAAGGTGGTGGAACCACTTGTGCCCCAGAGTTCGAGAGCAGCCTGGGCAACATGGCCAAAACCCCA
TCTCTACAAAAAATAATAGCTAGGCGTGGTAGTAGTGCACCTGTAGTTTCAGCTACTCGGGAGGCTGAGATGGGA
TAATCACCTTGAACITGGGAAGATTGAGACTGCCAGTGAGCTGA

CutSZB_M37-3+++
TGCCGGGACTTTCGAACCGTCTGGGCTGCCCTGAAAGCTTGGACTACCAGGGGTAAAGCGGTTCAAGGGCCCTCAATTAT
CAACAGGAACTGTGATGACATGTACTAACAACACTGCCCAGGTCGGGTTTGATGGCAAATGCAGGACATACAAAA
TACTAATATGGCTGCAGGGCTGGAATCAATCGAACGTGG

PK37-9RfWithM13R
GCGAGAAAGGAAGGAAGAAAGCGAAGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCGGTCACGCTGCGCG
TAACCAACACACCCCGCGCTTAATGCGCCGCTACAGGGCGGTCCATTCGCCATTCAAGGTGCGCAACTGTGTGG
GGAAGGGCGATCGGTGCGGGCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGCGATTAAAG
TTGGGTAAACCGCCAGGGTTTCCAGTCAAGACGTTGTAAACGACGCCAGTGAATTGTAATACGACTCACTATA
GGGCGAATTGGGCCCTCTAGATGCATGCTCGAGCGCGCCGCTGATGGATACTGCAGAAATCGGCTTGCCT
GTACTCCAGCAGTTT

Figure 3 Continued

>PK39-4RrWthM13R
 CCACACCCGCGCTTAATGCGCGCTACAGGGCGGTCCATTCCGCATTGAGGCTGCGCAACTGTGGGAAGG
 GCGATCGGTGCGGGCTCTTCGCTATTACGCCAGCTGGGAAAGGGGATGTGCTGCAAGCGATTAAAGTGGGT
 AACGCCAGGGTTTCCCAATCAGACGTTGTAAACGACGCCAGTGAATTGTAATACGACTCACTATAGGGCGA
 ATTGGCCCTCTAGATGCAATGCTCGAGCGCGGCCAGTGTGATGGATATCTGCAGAAATCGGCTTGCCTGTACTCC
 CAGCAGTTT

>PK37-9RrWthM13R
 GCCTGTACTCCAGCAGTTTGAGAGGCCAAGATGGGTGGATCACTTGAGGTCTAGAGCTCAAGACCAGCCTGGCG
 ACATGGTGAAACCCCATCTCTACTAAATAATAAAATCAGCCAGGTGTGGTGGTGGCACCTGTAAACCCAGCT
 ACTCAGGAGGCTGAGGAAGCCGAATTCAGACACACTGGCGCCGTACTAGTGGATCCGAGCTCGGTACCAAGCT
 TGGCGTAATCATGGTTCATAGCTGT

>PK39-4RrWthM13R
 GCCTGTACTCCAGCAGTTTGAGAGGCCAATCAGATGGATCATCTGAGGTCAAGGATTCAAGAACCCCTTATC
 AACATGAAGAACTCCTGGTCTCTACTATAAAATACAAATAGCCAGGTATCATGGCAAAATGCTTGTATCCTAGCT
 ACTCAGAAAGGTGAGGCAGAGGAATCACTTGAACCTGTGAGCGGAGGTTTCGGTGAAGTGTGCAAAAC
 ACCAAGCCGAATTCAGACACACTGGCGCCGTACTAGTGGATCCGAGCTCGGTACCAAGCTTGGCGTAATCAGG
 TCATAGCTGT

>PK34-6rWthM13R
 GCCTGTACTCCAGCAGTTTGAGAGGTCAAGGAAGGAGATCAGTTGAGTCCGGGAGTTTGAGATGAGCCTGGG
 CAACATGGCAAAACCTCGTCTCTACAAAAATACAAAAAAGTAAGCCGGGATGGTGGAGAGGCTATTCGGCT
 ATGACTGGGCACAACAGACAATCGGCTGCTGTGATGCCCGCGTGTCCGGCTGTCAAGCAGGCGGCGCCGGTTC
 TTTTGTCAAGACCGACCTGTCCGGTCCCTGAATGAATGCAAGCAGGAGGCGGCTATCGTGGCTGGCCA
 CGACGGCGTTCCTTGGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGACTGGCTGTCTATTTGGCGGAAG
 TGCCGGGCGAGGATCTCCTGTCTATCCACCTTGTCTCCTGCCGAAAGTATCCATCATGGCTGATGCAATGCGGCG
 GCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCAAGCGAAACATCGCATCGAGCGAGCACGTACTCG
 GATGGAAGCCCGTCTGTGATCA

>PK37-1WthM13R
 AACAGCTATGACCTGATTACGCCAAGCTTGGTACCGAGCTCGGATCCACTAGTAACGGCCGCCAGTGTGCTGGAA
 TTCGGCTTGCCTGATCTCCAGCAGTTTGGGAGGCCAAATCAGATGGATCATCTGAGGTCAAGGATTCAAGAACC
 ACCTTATCAACATGAAGAATCCTGGTCTCTACTAAAAATACAAAATTAGCCAGGTATCATGGCAAAATGCTTGTGAT
 CCTAGCTACTCAGAAGGCTGAGGCAGAGGAATCACITGAACCTGTGAGCGGAGGTTTCGGTGAAGTGTGATGATGT

Figure 3 Continued

GCAAAACCCCTCCAAGCCGAATTCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGGCCC
 AATTGCCCCATAGTGAGTCGTATTACAAATTCAGTGGCGTCTGTTTACAAAGTCGTGACTGGGAAACCCCTGGCG
 TTCCCAACTTAATCGCCTTGACGACATCCCCCTTTGCGAGCTGGCGTAATAGCGAAGAGGCCGCCACCGATCGCC
 CTTCCTCAACAGTTGCGCAGCCTGAATGGCGAATGACGCGCCCTGTAGCGCGGCATTAAAGCGCGCGGGTGTGGT
 G

>PK37-1rwithM13R

GCCTGTACTCCAGCAGTTTGGGAGGCCAAATCAGATGGATCATCTGAGGTCAGGAGTTCAAGAACCACCTTATC
 AACATGAAGAATCCTGGTCTCTACTAAATAACAAATAATAGCCAGGTATCATGGCAAATGCTTGTCAATCCTAGCT
 ACTCAGAAAGGCTGAGGCAGAGGAATCACTTGAACCTGTGAGCGGAGGTTTCGGTGAGCTGAGATTGTGCAAAAC
 ACCCTCAAAGCCGAATTCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGCCCAATTCTG
 CCTATAGTGAGTCGTATTACAAATTCAGTGGCGTCTGTTTACAACTGCTGACTGGGAAACCCCTGGCGTTCCCA
 ACTTAATCGCCTTGACGACATCCCCCTTTGCGAGCTGGCGTAATAGCGAAGAGGCCGCCACCGATCGCCCTTCCC
 AACAGTTGCGCAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGCGGCATTAAAGCGCGCGGGTGTGGTG

>PK34-2withM13R

GCCTGTACTCCAGCAGTTTGGGAGGCCGAGCGGGCGAGATTGCCTGAGCTCAGGAGTTCGAAACCAGCCTGGAC
 AACACGGTGAAACCCCTGTCTACTATAAAATACAAATAATAGCCAGCTGAGTGGTGCATGCCTGTAGTCCCAG
 CTAGTCAGGAGGCTGAGGCAGGAGAAATCACTTGAACCCAGCAGGAAAGGTTGTGGTGAGCTGAGATTGTGCAA
 ACACCTCCAAGCCGAATTCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGCCCAATT
 CGCCCTATAGTGAGTCGTATTACAAATTCAGTGGCGTCTGTTTACAACTGCTGACTGGGAAACCCCTGGCGTTAC
 CCAACTTAATCGCCTTGACGACATTCGCCCTTTGCGCAGCTGGCGTAATAGCTAAGAGGCCGCCACCGATCGTCCC
 TTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGCGGCATTAAAGCGCGCGGGTGTGGTG
 GTTAC

>PK34-7withM13R

GGAGGGTGTGTGCACAACTCGGCTTACTGTCAACCTCCACTCCTGGGCTTAAACGGTCTCCCACTCATCTTCCC
 GAGTAGCAGGGTCCACAGGTGCACACCACCATGCTGGCTATATTTTTTTTTTTTGGATTTTTGATAAGACAG
 GATGTCAACATGTTGCCACGGTCTTCAACCCCTTGAACTCAATTCATCTGCTTCTGCTCCCAACTGGTG
 GGAGCTTTGAGGTGGCGAACCACCTGATGTTACGAATATGAGACTTTTCGGCCTGATTCGGGCCAAACTCTCGTC
 TTATTTTTATAATCTAATAAATCCCATCTAGGGGCTAGGGT

>PK34-8withM13R

GGAGGGTGTGTGCACAACTCAGCTCACCGAAACCTCCGCCCTCACAGGNTCAAGTGATTCTCTGCCTCAGCCCTC
 TGAGTAGCTAGGATGACAAAGCATTTGCCATGATACCTGGCTAATTTTGTACTTTTAGTAGAGACCAGGATCTTCA
 TGTGTGATAAGGTGTTCTTGAACTCCTGACCTCAGATGATCCATGTGATTGGCCCTCCCAAACTGCTGGGAGTACA

Figure 3 Continued

GGCAAGCCGAATTCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGGCCCAATTTCGCCCT
 ATAGTGAGTCGTATTACAATTCACTGGCGGCGTTTACAACGTGCTGACTGGGAAAACCCCTGGCGTTACCCAACT
 TAATCGCCTTGCAGCACATC

>PK34-9withM13R

GCCTGTACTCCAGCAGTTTGGGAGGTCAAGGTGGAGAGATCACTTGAGGTCAGGAGTTTCGAGACCAGCCTAACC
 AATATGATGAAACCCCATCTCTACTAAATAACAAATAATTAGCCGGCGTGTGGTGGCAACCTGTAATCCCAGC
 TACTCAGGAGGCTGAGGCAGGAGAAATTGCTTGAACCAAGGAGTCGGAGGTTCAGTAAGCCAAAGATTGTGCAAA
 CACCCTCAAAGCCGAATTCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGGCCCAATTTC
 GCCCTATAGTGAGTCGTATTACAATTCACTGGCGGCTGTTTACAACGTGCTGACTGGGAAAACCCCTGGCGTTACC
 CAACCTAATCGCCTTGCAGCACATCCCCCTTTTCGCCAGCTGGCGTAATAGCGAA

>PK37-3.1withM13R

CCGTGTACTCCAGCAGTTTGGGAGGTGATCACTTGAGGCCAGGGACTCAAGACCAACCTGGCCAAATATGGCAAAA
 CCGGCTAAATAACAAATAATTAGCTGGACATGTTGCAGGTGCCTGTAAATCCCAGCTACTCGGAGGTTGTGGC
 ATGAGAAATCACTTGAACCTGGGAGGAGGAGGCTGCAGCGAGCAGAGATTGTGCAACACCCCTAAGCCGAATTCT
 GCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGCCCAATTTCGCCCTATAGTGAGTCGCAT
 TACAATTACTGGCCCGCTGTTTACAACCGTCCGACTGGGAAAACCCCTGGCGTTAC

>PK37-7withM13R

GCCTGTACTCCAGCAGTTTGGGAGGCCAAATCAGATGGATCATCTGAGGTCAGGAGTTCAAGAACCCCTTATC
 AACATGAAGAATCCTGGTCTCTACTAAATAACAAATAATTAGCCAGGTATCATGGCAAATGCTTGTATCCTAGCT
 ACTCAGAAAGGCTGAGGCAGAGGAATCACTTGAACCTGTGAGGCGGAGGTTTCGGTGAGCTGAGATTGTGCAAAAC
 ACCCTCAAAGCCGAATTCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGGCCCAATTTCG
 CCTATAGTGAGTCGTATTACAATTCACTGGCCGCTGTTTACAACGTGCTGACTGGGAAAACCCCTGGCGTTACCC
 AACTTAATCGCCTTGCAGCACATCCCCCTTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTC
 CCAACAGTTGGCAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAGCGCGGGGT

>PK39-2withM13R

GCCTGTACTCCAGCAGTTTGGGAGGCTGAGGCGGTGGATCACAAAGTTAGGAGTTTGGGCCAGCCTGGCCAA
 TAAGATGAACCCCATCTGTACTAAATAACAAATAATTAGCCAAACGTGGTGGTGGCAACCTGTAGTCCCAGCTA
 CTTGGGAGGCTGAGGCAGGCAAAATAATTGCTTGAACCTGGGAGGCGGAGGTTGCAGGAGCTGAGATTGTGCAAAACA
 CCCTCAAAGCCGAATTCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGGCCCAATTTCG
 CCTATAGTGAGTCGTATTACAATTCACTGGCCGCTGTTTACAACGTGCTGACTGGGAAAACCCCTGGCGTTACCCA
 ACTTAATCGCCTTGCAGCACATCCCCCTTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTC

Figure 3 Continued

AACAGTTGCGCAGCCTGAATGGCGAATGGACGCCCTGTAGCGGCGCATTAAGCCCCGGGGGTGTGGTGGTTA
CGCGCAGCGTGACCGCTACACTTGCCAGCGCCCTAGCGCC

>BD43-13

GCCTGTACTCCAGCAGTTTGGAGGCCGAGGTGGGGGATGGCCTGAAGCCAGGAGTTTGAGACTAGCCTGGCC
TACATGGTGAAACCTGTCTCTACTAAATAACAATAATTAGCCGGACATGTGTGACACCTATAATACCCAGCTACT
CGGGAAGCTGAGCCATGAGAAATTGCTTGAACCCGGAAGGTGAGGTGCAAGTGAAGTGAATGTGCAAAACACC
CTCCGGCTGGGTGGCGGACCGCTATCAGGACATAGCGTTGGTACCCGTGATAATTGCTGAAGACTTGGCGGC
GAATGGGCTGACCGCTTCTCGTCTTACGGTATCGCCGCTCCGATTCCGATCGGCATCGCCCTTCTATCGCCTTCT
TGACGAGTTCTTCTGAATTGAAAAAGGAAGAGTATGATATTCAACATTTCGGTGTGCCCTTATCCCTTTTTC
GGCATTTTGCTTCTCTGTTTGTCTACCCACCAAAACCCCTGTGTGAAGTAAAGATGCTGAAGATCAGTTGG

BD43-18withM13R

GCCTGTACTCCAGCAGTTTGGAGGCCAAAGCGGACGGATCATATGAGGTCGAGAGTTCAAGAACCATGTTATC
AATGTGAAAAATCTGGGTCTATCTAAAAACACAAATTTACCCAGGTTGATGGAAGATGCTGGTCATCCTAATT
CCTCAGAAAGGCTGAGGCAGAGGAATCATTTGAACCTGGAGCGGACGTTCAGGGACCTGAATGGGGCAACC
ACCTTCAAAGCCGAATTTGCAAAATTTCCATAACATGGGGGCGGTTCAACCTGTCTTTTAAAGGGCCCATTTCC
CTTATATGAGTCGATTTACAAATTAAACGGGGCGTCTTTTACACCTTTGGATGGGAAAAACCCCTGCTACCCCA

>Chim57-7withM13R

ACAAATCGGCTGCTGTATGCCGCCGTGTTCCGGCTGTACGGCAGGGGCGCCCGGTTCTTTTGTCAAGACCGACC
TGTCGGGTGCCCTGAATGAATGCAGGACGAGGCAGCGGGCTATCGTGGCTGGCCACGACGGGCGTTCTTGCG
CAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGACTGGTCTATTTGGGCGAAGTCCGGGGCAGGATCTCC
TGTCATCCCACTTGTCTCTGCCGAGAAAGTATCCATCATGGCTGATGCAATGCGGGGCTGCATACGCTTGATCC
GGCTACCTGCCCATTCGACCAAGCGAAACATCGCATCGAGCGACGTAACGATGGAAGCCGGTCTGT
CGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGGCCAGCCGAACTGTTGCCAGGCTCAAGGCGGCGCAT
GCCCCAGGCAGGATCTGCTCGTGACCATGGCGATGCCCTGCTTGCCA

>pk50-26withM13R(-46)

TTAAAAACCGAAATGCCATGATACGCCAAGCTTGGTACCGAGCTACGGACCCACTAGCTAACGGCCGCCAGTGTGC
CTGACCTCTTATCCCTGCACGATATCCACTCACACTGCTGGTGTCCGTGATGCATCTACCGGGCTCAATTGCCCC
TATAGTGAAGTCGGATTACAATTCACTGGCCGCTGTTTACAAAGTCTGACTGGGAAACCCCTGGTTACCCAAC
TTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTTGGCGCAATAGCGAAGAGGCAATCGTCCGATCGCCCTTC
CAACAGCTTGGCAGCCAGAAATGGCTAATGGACCGGCCCTGTCTCCGGCCGCAATTAATCCGCGGCGGTGTGGCG
GTTACCCCGCAGCAGTG

Figure 3 Continued

>PK34-1withM13R
GGAGGGTGTGGCACAATCTGGAGGGTGTGGCACAATCTGGGCTCACCACACCTCTACCTCCAGGTTCAAGCA
GGAGGGTGTGGCACAATCTGGAGGGTGTGGCACAATCTGGGCTCACCACACCTCTACCTCCAGGTTCAAGCA
ATTCTGCCCTCAGCTCCCAAGTAGTGGGACTACAGGGTGCCAGCACCACACCTGGCTAAATTTCTGTATTTTGTAGT
AGAAACAGGGTTTCACCATGTGGCCAGGGTGTCTCGAATCTCTGACCTGTGTATCCGCTACCTTGGCTTTTCCA
AACTGCTGGGAGTACAGGCAAGCCGAATTCCTGCAGATATCCATCACACTGGCGGCGCTCGAGCATGCATCTAGA
GGGCCAATCCGCCCTATAGTGAGTCGTATTACAAATCCACTGGCCGAAGTTTACAACGGCGTGAATGGGAAACC
CTGGCGTTACCCCAACTTAATCGCCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGAAATAGCGAAGAGGCCCGCA
CCGATCGCCCTTCCC

>PK34-3withM13R
GGAGGGTGTGGCACAATCTCTGCTCACTACAACCTTCTACCTCCAGGCTCAAGCAATCTCTCCCATGTAGCTGGGA
GGAGGGTGTGGCACAATCTCTGCTCACTACAACCTTCTACCTCCAGGCTCAAGCAATCTCTCCCATGTAGCTGGGA
CCACAGGTGTGCACACCATGCCAAGCTAAATTTTGTATTTTGTAGTGAAGTGAAGTTTCAACCATATTGCCCAGGTT
GGTCTTGAACTCTTAAGCTCAAGCAATCCACCTGCCCTCAGCTTCTCAAACCTGCTGGGAGTACAGGCAAGCCGAATT
CTGCAGATATCCATCACACTGGCGGCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCCCTATAGTGAGTCGTAT
TACAATTCAGTGGCGTCTGTTTACAAACGTCTGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGCAG
CACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAAGGCCCGCACCGATCGCCCTTCCCAACAAGTTGGCGAGCCT
GAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAGCGCGGCGGTGTGTGTACG

>PK34-4withM13R
GGAGGGTGTGGCACAATCTCGGGCTCATGGCACCCCTCGCCCTCCAGATTCAAAATGATATCTCTGCCCTCAGCCTCC
TGAGTAGCTGGGATTACATGCATGGGCCACCATGCCAGCTAAATTTTGTATTTTGTAGTAGAGACGGGGTTTCAC
CATGTTGGCCAGACTAGACTTGAACTCTGACCTCGTAGTCCACCCACCTCAACCTCCCAAACCTGCTGGGAGTACA
GGCAAGCCGAATCTGCAGATATCCATCACACTGGCGGCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCCCT
ATAGTGAGTCGTATTACAATTCACTGGCCGCTGTTTACAACGTGCTGACTGGGAAACCCCTGGCGTTACCCAACT
TAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAAGGCCCGCACCGATCGCCCTTCCCAA
CAGTTGGCGAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAGCGCGGCGGTGTGTGTACG

>PK34-5withM13R
GGAGGGTGTGGCACAATCTCAGCTCACCGAAACCTCCGCTCAGAGTTCAAGTGAATCTCTGCCCTCAGCCTTC
TGAGTAGCTAGGATGACAAGCATTTGCCATGATACCTGGCTAAATTTGTATTTTGTAGAGACCGAGATTCTTCA
TGTGTATAAGGTGGTCTTGAACTCTGACCTCAGATGATCCATCTGATTTGGCTCCCAAACCTGCTGGGAGTACA
GGCAAGCCGAATCTGCAAAATATCCATCACACTGGCGGCGCTCGAGCATGCATCTAAAGGGCCCAATTCGCCCT
ATAGGTGAGTCGTATTACAATTCACTGGCCGCTGTTTACAACGTGCTGACTGGGAAACCCCTGGCGTTACCCAACT
TTAATCGCCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCT

>PK37-1withM13R

Figure 3 Continued

GCCTGTACTCCAGCAGTTTGGGAGGCCAAATCAGATGGATCATCTGAGTCCAGGAGTTCAAGAACCACCTTATC
 AACATGAAGAAATCCTGGTCTACTAAATAACAAAATTAGCCAGGTATCATGGCAAAATGCTTGTCATCCTAGCT
 ACTCAGAAGGCTGAGGCAGAGGAATCATTGAACCTGTGAGGCGGAGTTTCGGTGAGCTGAGATTGTGCAAAAC
 ACCCTCAAAGCCGAATCTGCAGATATCCATCACACTGGCGGCCCTCGAGCATGCATCTAGAGGGCCCAATTGG
 CCCTATAGTGAAGTGTATTACAAATTCACCTGGCCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTCCCA
 ACTTAATCGCCTTGACGACATCCCCCTTTCGACGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCC
 AACAGTTGGCAGCCTGAATGGCGAATGGACGGCCCTGTAGCGGGCGCATTAAGCGCGGGGTGTGTGTG

>PK37-2withM13R
 GGAGGGTGTGTGCAAAATCTCAGCTCATTTGCAACCTTCCAGCTCCAGGTTCAAGCGATTCTCTCTCCTCAGCCTCC
 CAAGTAGTTGGGATTACAGGCATGCACCATCATGCCCGGCTAATTTTGTATTTTGTAGTAGACACAGGGTTTCACC
 ATATTGGCCAGGCTGGTCTTGAACCTCTGAACCTGTGTCCACCCACCTCAGCCTCCCAAACCTGCTGGGAGTACAG
 GCGAATCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGGCCCAATTGCGCCCTATAGTG
 AGTCGTATTACAAATTCACCTGGCCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCG
 CCTTGCAGCACATTCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGC
 GCAGCCTGAATGGCGAATGGACGGCC

>PK37-4withM13R
 GGAGGGTGTGTGCAAAATCTCAGCTCATTTGCAACCTTCCAGGTTCAAGCGATTCTCTGCTCAGCCTCCTGAGTA
 GCTGGGATCACAGGTGTGTGCCACCATTCCTGGCTAATTTTGTATTTCTAGTAGAGATGGGGTTTACCATGTTG
 GTCAGGGCTGGTCTCAAACCTCTGAACCTCATGATCTGCCCCCTGCGCCCTCCCAAACCTGCTGGGAGTACAGGCAAGC
 CGAATCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGGCCCAATTGCGCCCTATAGTGA
 GTCGTATTACAAATTCACCTGGCCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGC
 CTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGATTG
 CGCAGCCTGAATGGCGAATGGACGGCCCTGTAGTCGGCGCATTAAGCGCGGGGTGTGTGTGTTACGC

>PK37-5withM13R
 GGAGGGTGTGTGCAAAATCTCAGCTCATTTGCAACCTTCCAGGTTCAAGCGATTCTCATGCCTCGGCTCT
 CAAGTTGCTGGGACTAGGGCACACGCCAGCAGGCTGGCTAATTTTGTATTTTGTAGTAGACACAGGGTTTCACC
 GTCTTGGCCATGCTGTCTCAAACCTCCTGACCTCATGATCCACCCGCTTGGCCTCCCAAACCTGCTGGGAGTACAG
 GCAAAGCCGAATCTGCAGATATCCATCACACTGGCGGCCGCTCGAGCATGCATCTAGAGGGCCCAATTGCGCCCTA
 TAGTGAGTCGTATTACAAATTCACCTGGCCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACT
 TAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCA
 CAGTTGCGCC

>PK37-6withM13R

Figure 3 Continued

GGAGGGTGTTCACAAATCTCAGCTCACCGAAACCTCGCCTCACAGTTCAAGTGAATTCCTCGCCTCAGCCTTC
 TGAGTAGCTAGGATGACAAAGCAATTGCCATGATACCTGGCTAATTTTGTATTTTATAGAGACCAGGATTCTTCA
 TGTGATAAGGTGTTCTTGAACCTCTGAACCTCAGATGATCCATCTGATTTGGCTCCCAAACCTGCTGGGAGTACA
 GGCAAGCCGAATTCGCAGATATCCATCACACTGGGGCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCCCT
 ATAGTGAGTCGTATTACAATTCACTGGCGTCGTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACT
 TAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAA
 CAGTTGCGCAGCCTGAATGGGAAATGGACGGCCCTGTAGCGGCGCATTAAGCGCGGGGTGTGTGGTTACGC
 G

>PK37-8withM13R

GGAGGGTGTTCACAAATCTTGTCTCACTGCAATCTCCACCTCCGGGTTCAAAGTGATTCCTGCCTCAGACTGCT
 GAATACTTGGGATTACAGGCACCCGCCACCACTGTGCTAATTTTGGATTTTTAAATAGAGATGGGGTTCAAC
 ATGTCAACCAAGGCTGGTCTTGAACCTCTGAACCTTAGGTGATCCACCCACCTCAGCCTCCCAAACCTGCTGGGAGTAC
 AGGCAAGCCGAATTCGCAGATATCCATCACACTGGGGCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCCCT
 TATAGTGAGTCGTATTACAATTCACTGGCGTCGTTTACAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACT
 TTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCA
 ACAGTTGCGCAGCCTGAATGGGAAATGGACGGCCCTGTAGCGGCGCATTAAGCGCGGGGG

>PK37-9withM13R

AACAGCTATGACCATGATTACGCCAAGCTTGGTACCGAGCTCGGATCCACTAGTAACGGCCGCCAGTGTGCTGGA
 ATTCGGCTTCCTCAGCTCCTGAGTAGTGGGGTTACAGGTGCCCAACCAACACACCTGGTGATTTTATATTTT
 GTAGAGATGGGGTTTCAACATGTGCCAGGCTGGTGTGAGCTTAGACCTCAAGTATCCACCCATCTTGGCCTC
 TCAAACTGCTGGGAGTACAGGCAAGCCGAATTCGCAGATATCCATCACACTGGGGCGCTCGAGCATGCATCT
 AGAGGGCCCAATTCGCCCTATAGTGAGTCGTATTACAATCACTGGCGCTGTTTACAACGTCGTGACTGGGAAA
 ACCCTGGCGTTACCCAACTTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCG
 CACCGATCGCCCTTCCCAAACAGTTGCGCAGCCTGAATGGGGAATGGACGGCCCTGTAGCGGCGCATTAAGCGC
 GGCGGTGTGGTGTACGCGCAGCGTGACCGCTACACITTGCCAGCGCCCTAGCGCCCGCTCCTTTCGCTTCTTC
 CCTTCCTTCTCGC

>PK37-26withM13R

GGAGGGTGTTCACAAATCTCGGGTCACAGTAGCCTCTGCCTCGGGTTCAAGCATTCCTCGCCTCAGCCTCC
 CGAGTAGCTGGGATTACAGGCAATGGGCCACCATGTCCATCTAATTTTGTATTTTATAGAGATGGGGTTTCTCCA
 TGTGTGTCAGGCTGTCGAATCCCAAACCTCAGGTGATCCACCGCCTTGGCCTCCCAAACCTGCTGGGAGTACA
 GGCAAGCCGAATTCGCAGATATCCATCACACTGGGGCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCCCT
 ATAGTGAGTCGTATTACAATTCACTGGCGCTGTTTACAACGTCGCGACTGGGAAACCCCTGCTGTTACCCAACT
 CAATCGCCTTGACAGC

Figure 3 Continued

>PK39-3withM13R
GGAGGGTGTGTCACAAATCTTGGCTCACTGCAACCTCTGCCTCTGGGCCCCAAGCCATCTTCTCACTCAGCTTCC
CGAGTAGTGGACTACAGGTGTGAGCCATCAGCCCCAGCCAAATTTTGTATTTTAGTAGAGACGAGGTTCACCCA
TGTTGGCCTGGCTTGATCTCTGAACCTAGTATCTCCCCCTCAGCCCTCAAACCTGCTGGAGTACAGG
CAAGCCGAATCTGCAGATATCCATCACACTGCGGCGCTCGAGCATGCACTAGAGGGCCCAATTCGCCCTAT
AGTGATCGTATTACAAATTCATGCGCGTCTGTTTACAACTGCTGACTGGGAAAACCTGGCGTTACCCAACTTA
ATCGCCTTGACGACATCCCCCTTTGCGCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCAAACA
GTTGCGCAGCCTGAATGGCGAATGGACGGCGCCTGTAGCGGGCAATTAACGCGGGGGGTGTGTGTTACGCGC
AGCGTAGCCGCTACACTTGCCAGCGCCCTAGCGCCCG

>PK39-4withM13R
AACAGCTATGACCTGATTACGCCAAGCTTGTGTAACGAGCTCGGATCCACTAGTAACGGCGCCAGTGTGTGGAA
TTCCGCTTGTGTCACAAATCTCAGCTCACCGAAACCTCCGCCCTCAGGTTCAAAGTGAATTCCTCTGCCTCAGC
CTTCTGAGTAGCTAGGATGACAAGCATTTGCCATGATACCTGGCTAATTTGTATTTTAGTAGAGACCGAGATTCT
TTCAATGTTGATAAGGTGTTCTTGAACCTCTGACCTCAGATGATCCATCTGATTTGGCTCTCAAACCTGCTGGAG
TACAGGCAAGCCGAATCTGCAGATATCCATCACACTGGGGCGCTCGAGCATGCACTAGAGGGCCCAATTCTG
CCCTATAGTAGTGTGATTACAAATTCATGGCGCTGTTTACAACTGCTGACTGGGAAAACCTTGGCGTTACCC
AACTTAATCGCCTTGACGACATCCCCCTTTGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTC
CCAAACAGTTGGCAGCCTGAATGGCGAATGGACGGCCCTGTAGCGGGCAATTAAGCGGGGGGTGTGTGG

>PK39-6withM13R
GGAGGGTGTGTCACAAATCTCAGCTCACCGAAACCTCCGCCCTCAGGTTCAAAGTGAATTCCTCTGCCTCAGCCTTC
TGAGTAGCTAGGATGACAAAGCAATTTGCCATGATACCTGGCTAATTTGTATTTTAGTAGAGATGGGGTTTGCCA
TGTTGGCCAGGCTGGTCTCAAACCTCCTGACCTCAAGTATCCCCCACCCTCGGCCCTCCCAAACCTGCTGGAGTACAG
GCAAGCCGAATCTGCAGATATCCATCACACTGGGGCGCTCGAGCATGCACTAGAGGGCCCAATTCTGCCCTA
TAGTGAGTCGTATTACAAATTCATGGCGCTGTTTACAACTGCTGACTGGGAAAACCTTGGCGTTACCCAACTT
AATCGCCTTGACGACATCCCCCTTTGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAAC
AGTTGGCAGCCTGAATGGCGAATGGACGGCCCTGTAGCGGGCAATTAAGCGGGGGGTGTGTGTTTAC

>PK39-7withM13R
GGAGGGTGTGTCACAAATCTGAGGGGTGTTTGCACAATCTCGGCTCACCACAATCTTTGCCCTTCGGGTTCAGGG
ATTCTCCTGCCCTCAGCCTCCGAGTAGCTGGGATTACAGGCAATGTGCCACCACACCCGGCTAATGTTGTAGTTTA
GTAGAGACGGGGTTTCTCTATGTTGGTTAGCTGGTCTCAAACCTCCTGACCTCAGGTGATCTACCCGCCCTCGGCCT
CTCAAACTGCTGGAGTACAGGCAAGCCGAATCTGCAGATATCCATCACACTGGCGGCCCTCGAGCATGCAATC
TAGAGGGCCCAATTCGCCCTATAGTGAGTCGTATTACAAATTCATGCGCGTCTGTTTACAACTGCTGACTGGGAA

Figure 3 Continued

AAACCTGGCGTTACCCAACTTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCC
GCACCGATCGCCCTTCCCAACAGTTGCGCAGCCCTGAATGGGAATGGACGCGCCTGTAGCGGCGCATTA

>PK39-8withM13R

GGAGGGTGTGTCACAAATCTCAGCTCACCGAAACCTCCGCCTCACAGGTTCAGTGATTCTCTGCCTCAGCCTTC
TGAGTAGCTAGGATGACAAGCATTTGCCATGATACCTGGCTAATTTTGTATTTTAGTAGAGATGGGTTTGGCCA
TGTTGGCCAGGCTGTCTCAAACTCCTGACCTCAAGTATCCCCACCTCGGCCTCCCAAACCTGCTGGAGTACAG
GCAAGCCGAATTCTGCAGATATCCATCACACTGGGGCCGCTCGAGCATCTAGAGGGCCCAATTCGCCCTA
TAGTGAGTCGTATTACAAATTCACGTGGCGTCTTTTACAAAGTCTGACTGGGAAACCCCTGGCGTTACCCAACTT
AATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATGCCCTTCCCAAC
AGTTGGCAGCCTGAATGGCGAATGGAGGCGCCCTG

>PK39-9withM13R

GGAGGGTGTGTCACAAATCTCAGCTCAITGCAACCTCCAGCTCCCGGTTCAAGCAATCCCTCGCCTCAGCCTCC
TGAGTAGCTGGAACTACAGGCA CGGCCACCAAGTCTGGTAAATTTTGTATTTTATAGAGATGGGTTTAC
CATGTTGCCAGGCTGCTTAAACTCCTGGGCTCAAGCTATCCACTCGCCTTGGCCTCCCAAACCTGCTGGAGTA
CAGGCAAGCCGAATTCTGCAGATATCCATCACACTGGGGCCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCC
CTATAGTAGTCGTATTACAAATTCACGTGGCGTCTTTTACAAAGTCTGACTGGGAAACCCCTGGCGTTACCCAA
CTTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATGCCCTTCCA
ACAGTTGGCAGCCTGAATGGCGAATGGAGCGCCCTGTAGCGGCGCATTAAGCGGCGGGGTGTGTGGTTACG
CGCAGCGTG

>PK39-10withM13R

GGAGGGTGTGTCACAAATCTCAGCTCACCGAAACCTCCGCCTCACAGTTCAAGTGATTCTCTGCCTCAGCCTTC
TGAGTAGCTAGGATGACAAGCATTTGCCATGATACCTGGCTAATTTTGTATTTTATAGAGACCAGGATTTCTCA
TGTTGATAAGTGTTCTTGAACTCCTGACCTCAGATGATCCATTTGATTTGGCCTCCCAAACCTGCTGGGAGTACA
GGCAAGCCGAATTCTGCAGATATCCATCACACTGGGGCCGCTCGAGCATGCATCTAGAGGCCCAATTCGCCCT
ATAGTGAGTCGTATTACAAATTCACGTGGCGTCTTTTACAAAGTCTGACTGGGAAACCCCTGGCGTTACCCAACT
TAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATGCCCTTCCCAA
CAGTTGGCAGCCTGAATGGCGAATGGAGCGGCCCTGTAGCGGCGCATTAAGCGGCGGGGTGTGTGGTTAAGC
GCAGCGTGACC

>PK39-12withM13R

GGAGGGTGTGTCACAAATCTTGGCTCACTGCAACTTTTGCCTCCTGGGTTCAAGCAATTTCTCTGCCTCAGCCTCC
GAGTAGCTGGGACTATAGGCACGGCCCATCAGCCGGGTATTTTGTATTTTATAGACAGCGGGGTGTACATG
GTGGTCAAGCTGGGTTGAACCTTCTGACCTCAAGTGATCCTGCCCGCTCGGCTTTCCAAACCTGCTGGGAGTACAT

Figure 3 Continued

GTATTACAATTACTGGCCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAACTTAATCGCCTT
GCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGCCCGCACCGATCGCCCTTCCCAACAGTTGCGC
AGCCTGAATGGCGAATGGACGCGCCTGTAGCGGCGCATTAAGCGGCGGGTGTGTGGTTACGCGCAGCGTGAC
C

4>BD43-8(2)withM13R BD43-8 (178, 100, 11q22.3)
GGAGGGTGTTTGACAAATCTTGGCTCACTGCAACCTCCACCTCGCAGTTCAGCAATTCCTGTGCCTTAGCCTCCT
GAATAGTAGTGGGATTACGGGCGTGTGCCATCACACCCAGCTAATTTTGTATTTTAGTAGAGACAGTTGTCCA
GGCTGCTTTGAATTCCTGGCCTCAAGAGATCCGCTGGCTTGGCCCTCTAAACTGCTGGGAGTACAGGCAAGCCG
AATCTGCAGATATCCATCACATGACATGGCGCCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCCCTATAGTGAGTC
GTATTACAATTCACTGGCCGTCGTTTACAAACGTCGTGACTGGGAAACCCCTGGGTTACCCAACTTAATCGCCTT
GCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGCCCGCACCGATCGCCCTTCCCAACAGTTGCGC
AGCCTGAATGGCGAATGGACGCGCCTGTAGCGGCGCATTAAGCGGCGGGTGTGTGGTTACGCGCAGCGTGAC
C

>BD43-9withM13R
GGAGGGTGTTTGACAAATCTCAGCTCACTGCAACCTTCGCCCTCCCGGTTCAAGTAGTTCCTCGCTCAGCCTCC
TGAGTAGCTAGGACTATAGATGCCCCACACAGCCTGGCTAATTTGTATTTTGTATGATACAGTCGGGGTTTGC
CATGTTGCCAGGCTGATCTCGAACCCCTGACCTCAACTGATCCACCCACCTCGCCCTTCCAAACTGCTGGGAGTA
CAGCAAGCCGAAATCTGCAGATATCCATCACACTGGCGCCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCC
CTATAGTAGTCGTATTACAATTCACTGGCCGCTGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAA
CTTAATCGCCTTGACGACATTCCTTTCGCCAGCTGGCGTAATAGCGAAGAGCCCGCACCGATCGCCCTTCCA
ACAGTTGCCAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAGCCCGCGGGTGTGTGGTTAC

>BD43-10withM13R
GGAGGGTGTTTGACAAATCTCAGCTCACTGCAACCTTCCTCTCTGCAATTCAAATGATTCATGCCTCAGCCTTCC
GAGTAGCTGGAATTACAGACATGTACTACACACCCAGGCTAAGTTTGTATTTTAGTAGAGACGAGTTTCACCA
TGTGGCCAGGCTGTTGAATCTCTGGCCCTCAAGTATCCACCTGCCCTGGCTTCCAAACTGCTGGGAGTACA
GGCAAGCCGAAATCTGCAGATATCCATCACACTGGCGCCGCTCGAGCATGCATCTAGAGGGCCCAATTCGCCCT
ATAGTAGTCGTATTACAATTCACTGGCCGCTGTTTACAAACGTCGTGACTGGGAAACCCCTGGCGTTACCCAAAC
TTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGCCCGCACCGATCGCCCTTCCC
AACAGTTTGGCAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAGCGGCGGGTGTGTGGTTA
CGCGCAGCGTGACCGCTACACITGGCCAGCGCC

>BD43-14 (191, 100, 16q24.2) withM13R

Figure 3 Continued

GGAGGGTGTGTGCACAAATCTCAGCTCACCACAAACCTTTCTCTGCTGGGTTCAGTGATTATCCTGCCTCAAACCTCC
CGACTAGCTGGGATTACAGGCATGCACCAACCATGCCTGGCTAAATTTTGTAATTTTAGCAGAGACAGTGTTCCTCCA
TGTGGTGAGGCTGGTCTCAAACTCCCGACCTCAGGTGATCCGCTGCCCTCAGCCTCCCAAACTGCTGGGAGTACA
GGCAAGCCGAATCTGCAGATATCCATCACTGGCGCGCTCGAGCATGCACTCTAGAGGGCCCAATTGCCCCCT
ATAGTGAGTCGTATTACAAATTCACTGGCCGTCGTTTACAAACGTGCTGACTGGGAAACCCCTGGCGTTACCCAACT
TAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAA
CAGTTGCGCAGCCTGAATGGCGGAATGGACGCGCCCTGTAAACGGGCGCATTAAGCGGCGGGGTGTGGTGGTTACGC
GCAGCGTGACCGCTACACTTGCCAGCGCCCTAGCGC

Figure 3 Continued

